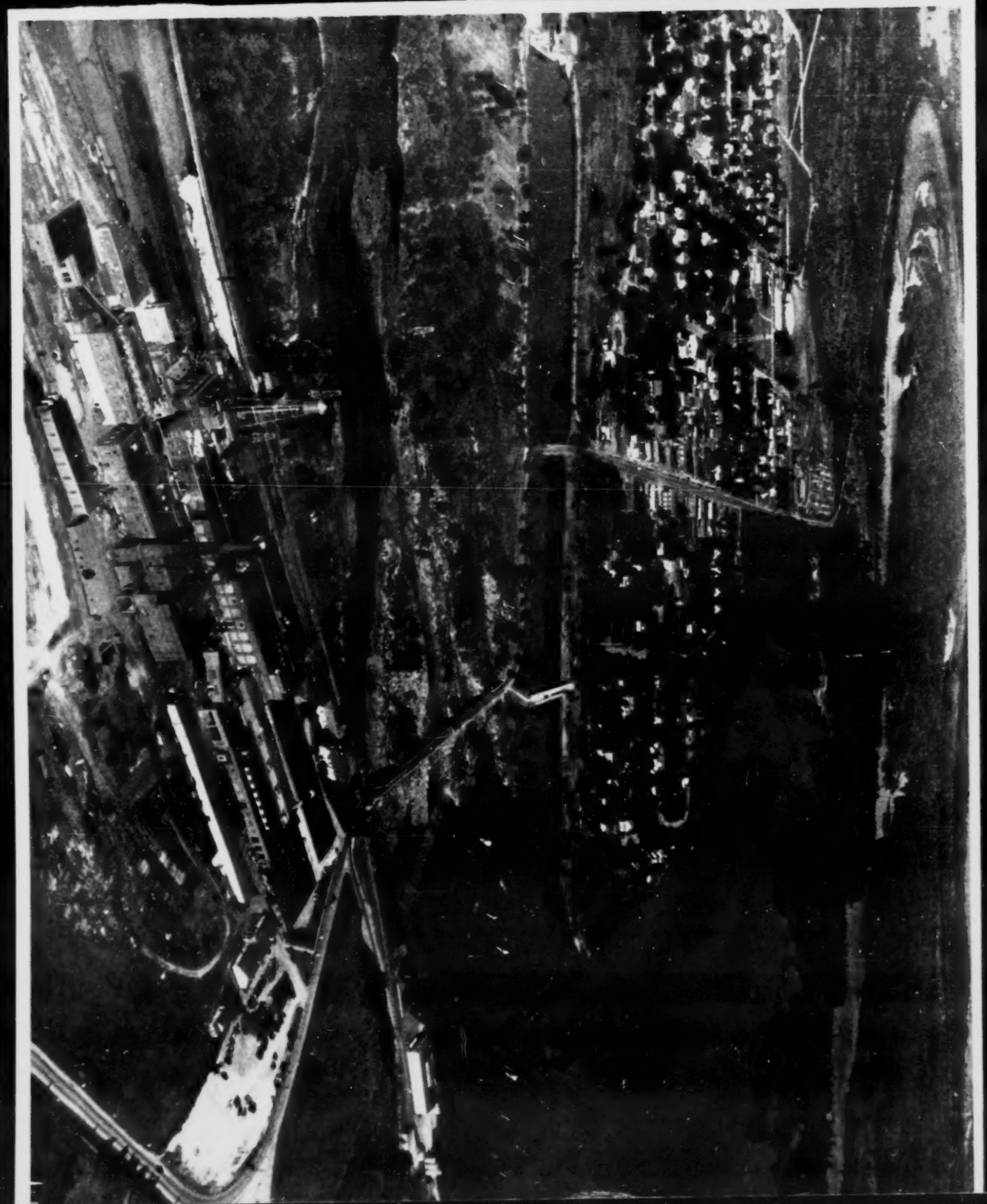
THE PRODUCTION AND MANAGEMENT JOURNAL OF THE NORTH AMERICAN PULP AND PAPER INDUSTRY



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The difference is

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"Seal up" your papers with the dependable liquid resistance of ALWAX or WAXINE sizes . . . and you seal up your paper sales!

You'll find ALWAX and WAXINE sizes give your papers *uniform, dependable* resistance to water, lactic acid, blood serum and ink.

You'll discover, too, that your papers fold better . . . your boards bend better . . . with ALWAX or WAXINE sizes.

And you'll find an unusually wide range of sizes to choose from, each one specially developed to give excellent results in the beater, size tub or calender box—all maintaining good stability in storage.

If wax-sizing can do it, an ALWAX or WAXINE size can do it best! Just ask a Cyanamid Technical Service man to recommend the type best suited to your requirements.

Cyanamid Paper Chemicals: ACCOBRITE® Rosin Size • ACCOCEL® Dispersants AEROSIZE® Sizing Emulsions • AEROSOL® Wetting Agents • ALWAX* and WAXINE® Wax Sizes • AZITE® 900 Liquefier • CALMICRO® Calcium Carbonate • CYFOR® Rosin Sizes • CYNOL* Rewetting and Softening Agents CYRON* Synthetic Size • PAREZ® Wet-Strength Resins • Rosin Size—Liquid and Dry • Aluminum Sulfate • Sodium Phospho Aluminate • Clays • Defoamers and other Specialty Products • Acids • Alkalis • Other Heavy Chemicals *Trademark

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ALLIS-CHALMERS LIME SLUDGE KILNS *Preferred* by the Sulphate paper industry

45 Allis-Chalmers Lime Sludge Kilns are Now in Operation in United States and Canada

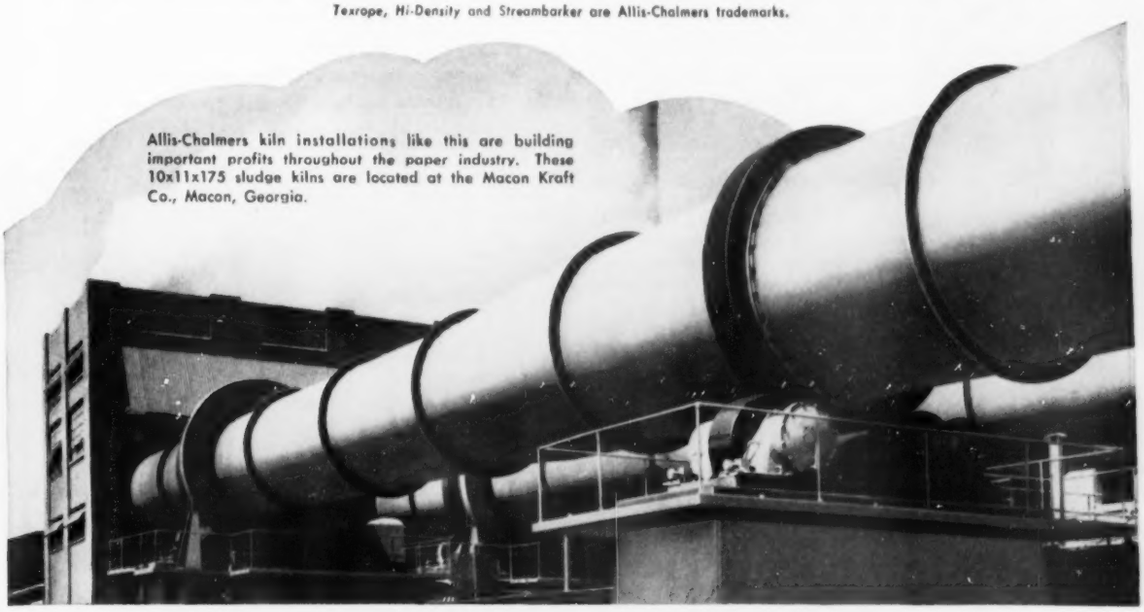
This marked preference is the result of many engineering and construction features which make the Allis-Chalmers rotary kiln the hardest working, most profitable equipment ever developed for lime sludge recovery.

In the A-C kiln, a carefully calculated diameter-length ratio minimizes costly "ringing" and resultant operational troubles and shutdowns. A new 20 degree involute spur gear distributes driving force evenly. True circle shell construction insures a tight refractory lining fit and long refractory life. Floating type riding rings provide adequate support and proper weight distribution.

Big Fuel Saving . . . Increased Capacity

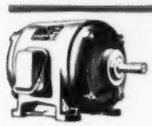
Fuel savings as high as 30% and a 10% capacity increase are made possible by the Allis-Chalmers patented heat-recuperating system, a chain-hanger-spiral arrangement in the feed end of the kiln. This system effectively extracts heat from gases . . . gives low exhaust temperatures . . . increases heat transfer surface. Write Allis-Chalmers, Milwaukee 1, Wisconsin, for Bulletin 07R7010. A-4003

Texrope, Hi-Density and *Streambarker* are Allis-Chalmers trademarks.



Allis-Chalmers kiln installations like this are building important profits throughout the paper industry. These 10x11x175 sludge kilns are located at the Macon Kraft Co., Macon, Georgia.

ALLIS-CHALMERS A-C ALLIS CHALMERS *Paper Making Equipment*



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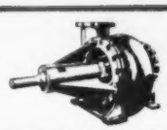

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TEXROPE V-BELT DRIVES

STREAMBARKER

HI-DENSITY FEEDER

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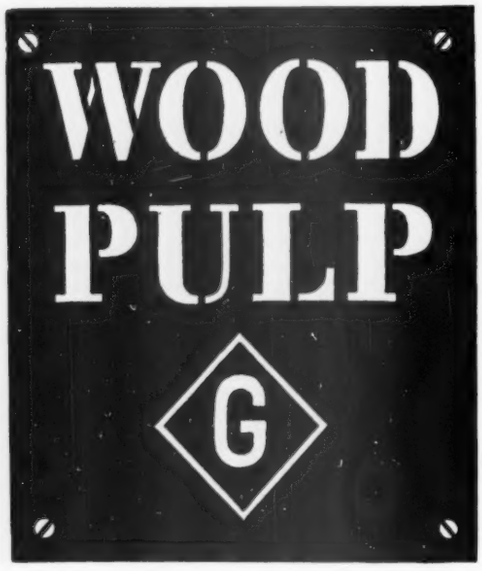
Established 1886



"Give me the liberty to know, to utter, and to argue freely according to conscience, above all liberties."

MILTON

One of man's most precious rights is the unrestrained communication of thoughts and opinions.

In producing paper in vast quantity and within the reach of all, the Pulp and Paper Industry has helped bulwark the very foundation of liberty.

In peace, in war, at all times and under all circumstances, paper is essential to democracy and the forward march of civilization.

★

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PULP & PAPER

Production and Management Magazine of the Industry

Mar. 1953

Vol. 27—No. 3

"The Cellulose Age"

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A Thought on the "Brainpower" Shortage

"Engineers . . . Engineers . . . Engineers . . . this is the frantic cry of industry today for the students of tomorrow in a field where the present running deficit for qualified men is estimated at well over 60,000."

This is a sentence picked up out of text from a college publication we were looking over the other day. How true!

And it went on to say that every engineer in the 1952 graduating class in that particular university had a job lined up for himself long before he had even received his diploma. A student pondering six or seven offers was not an uncommon sight.

What should cause one to pause a moment, and wonder about a bad feature of this situation is the stress that is placed upon starting salaries. We recall the head of a paper school in this country, who, just a short time ago, issued "an ultimatum" to paper companies as to what his "boys" would be willing to take as starting pay.

Is the starting pay for a 21 year old boy the important thing? Or his opportunity in industry?

Is this dean and professor doing his "boys" a disservice? Should they step into a glass paneled private office and sit in a swivel chair of their own, right out of the classroom?

True it is that the pulp and paper industry needs technicians and engineers as it never has before, and must face stiffer competition than ever before to get them. But will they all perform as well and make as good industrial leaders, as a result of the conditions under which they are entering industry, as they would under more competitive conditions?

A Boy We Would Like to Hire

There is a boy out in Long Beach, Calif., who has given evidence of being the kind of person we'd like to have associated with us in business and as a next door neighbor. A Long Beach resident, in a letter to the *Christian Science Monitor*, gave us this evidence:

"One evening when I came home from work, instead of the usual quart bottle of milk standing on the porch, there was a cardboard carton of milk. Underneath was a folded paper, and on top were some pennies. The paper proved to be a note from the young lad who delivers my evening paper.

" 'When I threw your paper on the porch, I broke your milk bottle,' the note said, 'so I cleaned it up for you. I tried to get you a bottle of milk, but they didn't have any milk at the store except in cartons, so I got you a carton of milk. I left the change to pay your milkman for his bottle that I broke, and I put it on top of the carton.—Your paper boy, Larry.'

"All broken glass had been taken away, and porch and steps had been scrubbed. Here was a lad with a desire to right his mistakes."—*from Rice Barton Corp.'s "The High Road."*

Making Safety Work Succeed

Anyone concerned with safety work in the mills recognizes that there is always a problem of stirring up interest and enthusiasm in the work. And also of maintaining that enthusiasm at a high pitch.

Well, we have pointed to Kimberly-Clark in these columns before this, as a company which has come through with some original thinking and planning to put over safety. And here we are—talking about Kimberly-Clark again.

For what has caught our eye is the "safety stunt" the Kimberly, Wis., mill staged recently. It organized a mock football game for the purpose of indelibly teaching the lessons of safety. Football interest will have waned considerably as you read this, but it was at its peak when "Coach" Joe Doerfler (manager of the Kimberly mill) and "Coach" A. D. Wilkinson (production manager) lined up their teams, the "Bears" and the "Packers," for the big battle in the Kimberly Clubhouse.

Players—all members of the office workers union—were in uniforms and helmets. Gains were made for safety questions answered correctly. Time-outs were taken for substitutions and fictitious injuries. Officials asked questions and quarterbacks assigned them. Touchdowns and conversions were scored. Incidentally, one official was Dan Di Santis of the Niagara Falls, N. Y., Mill, who formerly played with the Philadelphia Eagles.

And finally, winning "Coach" Wilkinson was carried off the floor on the shoulders of his players.

It may seem regrettably necessary, but necessary nevertheless, that safety be "sold" by methods like this.

THE MEAD SALES COMPANY
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MEAD
pulp

DISTRIBUTORS OF WOOD PULP
BLEACHED AND UNBLEACHED
CHEMICAL AND MECHANICAL WOOD PULP

Paul Bunyan trained Babe the Blue Ox as a calf to point and flush a new stand of trees when he called "Timber!" Today loggers echo Paul, but merely mean a tree is falling.

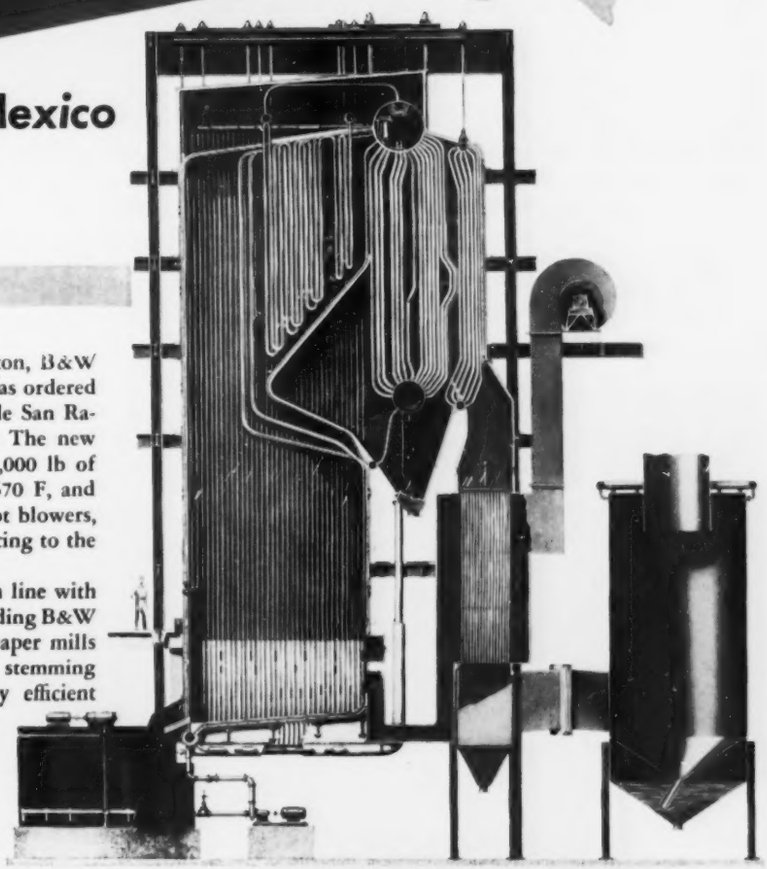
A reproduction of this incident from the fabulous life of Paul Bunyan—the sixty-ninth of a series—will be sent on request. It will contain no advertising.

REPUTATION of B&W Recovery Units GOES A LONG WAY

...to Mexico

"South of the border," a 66-ton, B&W Black-Liquor Recovery Unit was ordered recently by Fabrica de Papal de San Rafael y Anexas, S. A., Mexico. The new unit is designed to deliver 31,000 lb of steam per hr at 475 psi and 670 F, and is equipped with automatic-soot blowers, which reduce routine hand-lancing to the minimum.

Destination of this unit is in line with a developing pattern that is sending B&W Recovery Units to pulp and paper mills in all parts of the world . . . stemming from a reputation for highly efficient chemical and heat recovery, with low-cost operation and maintenance, that has been service-proved since 1935.



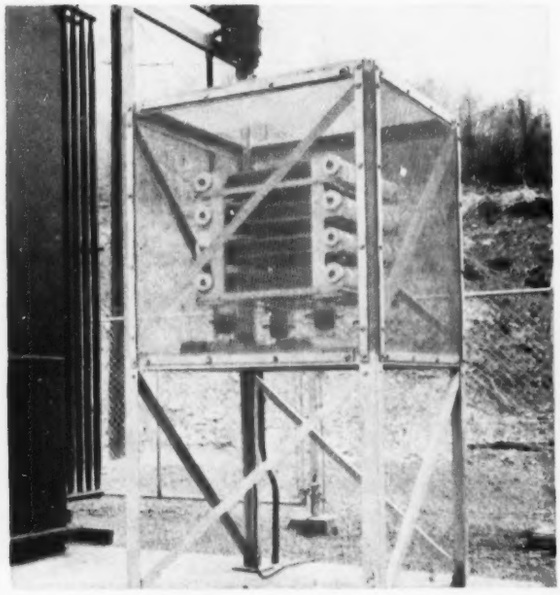
Typical B&W 2-Drum Recovery Unit equipped with B&W Cyclone Evaporator

BABCOCK & WILCOX
BOILER DIVISION

P-776

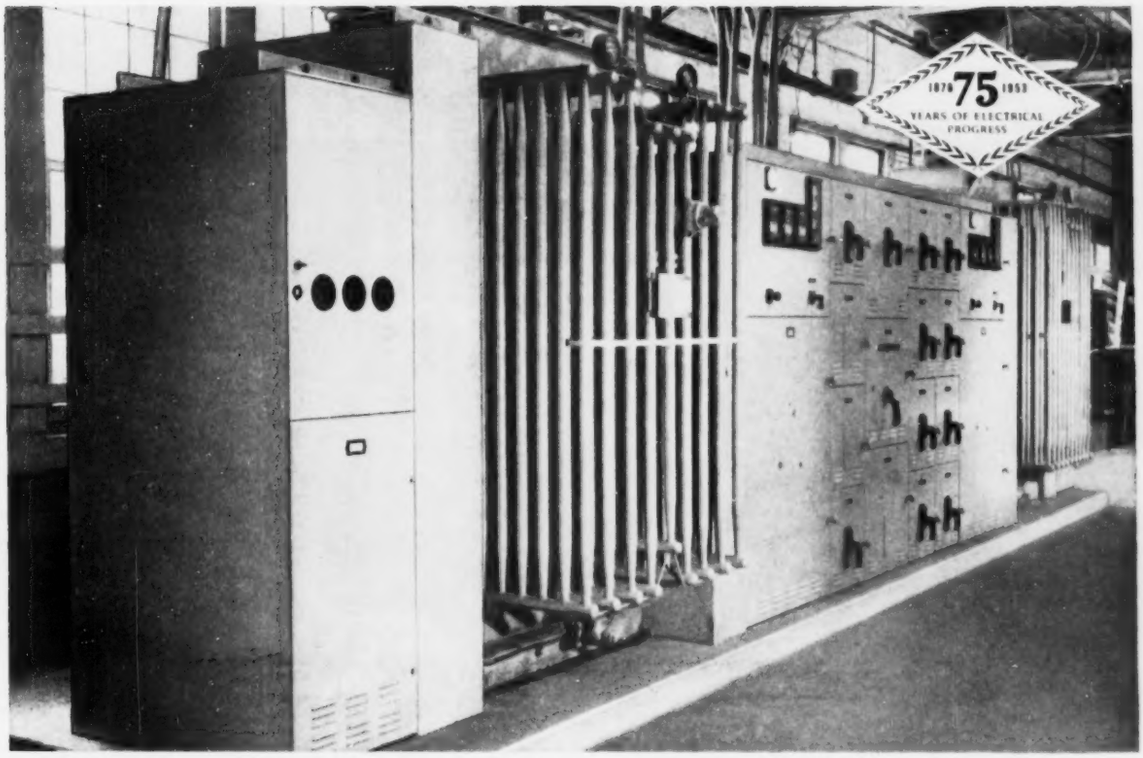
AMPLE IC. G-E metal-clad switchgear at Gardner has ample interrupting capacity for both present load and future expansion. Alfred Clegg, power house chief, likes the operating convenience of centralized control for main power circuits.

Modern power distribution system



NEUTRAL GROUNDING provides better over-all system operation. This resistor in the neutral of the 4160-volt system limits ground-fault current minimizing damage to equipment.

G-E APPLICATION ENGINEERS, with tools like this portable analyzer, can study your entire power system quickly—and recommend the proper system for your present and future load.



PROTECTS PRODUCTION. This 3000-kva G-E double-ended unit substation is one of two that insure against complete shutdown in stock preparation areas by providing an alternate 480-volt power source via secondary-selective arrangement.

protects production at Gardner

Secondary selective arrangement also adds flexibility for future expansion, more safety for personnel—neutral grounding minimizes equipment damage due to ground faults

Recently the Gardner Board and Carton Company of Lockland, Ohio, realizing that modern paper-making machinery does a continuous, high-tonnage job only when supplied continuously with adequate electric power, modernized its plant's power distribution system. Completely engineered and equipped by General Electric on an economical step-by-step basis, the new system includes such modern engineering advances as these:

"Building-block" load-center unit substations that reduce power distribution costs and make future expansion easier—factory-assembled metal-clad switchgear that cuts installation cost and protects equipment and feeders—high-voltage power distribution for full voltage at the motors and higher operating efficiency—a secondary selective arrangement that safely provides a dual power-supply route for greater reliability and continuity of production—and neutral grounding of both the 4160- and 480-volt systems for greater safety to personnel and lower over-all downtime for outages.

Let your local G-E apparatus sales representative tell you how G-E engineers can analyze your entire power system quickly, and help you select the proper equipment to fit your plant's needs.

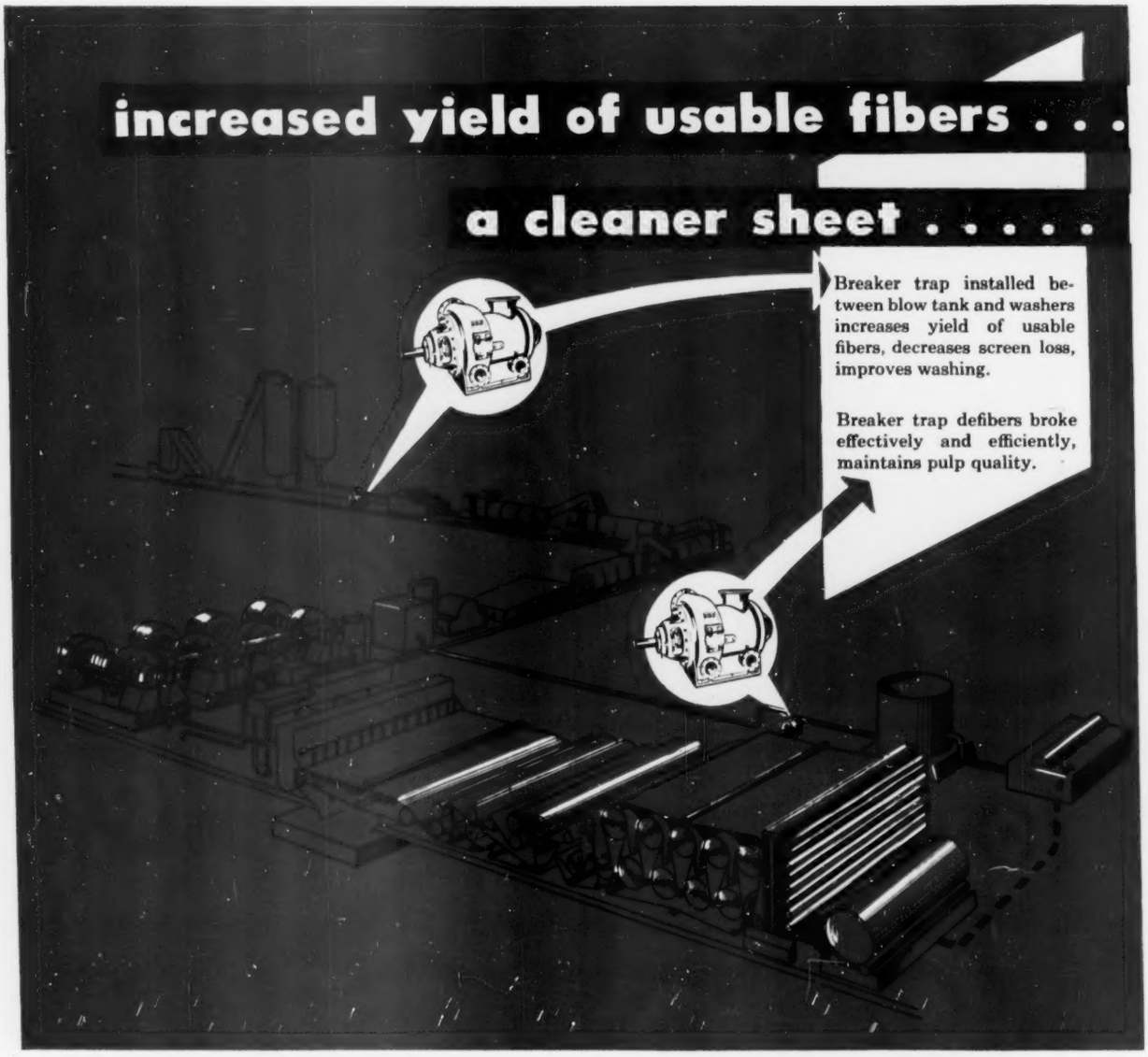
Meanwhile, write for bulletin GEA-5521, "Power System Equipment for Pulp and Paper Mills" and technical article GET-1181C, "Neutral Grounding of Industrial Power Systems." Section 655-12, General Electric Company, Schenectady 5, N. Y.

Engineered Electrical Systems for Paper Mills

GENERAL ELECTRIC

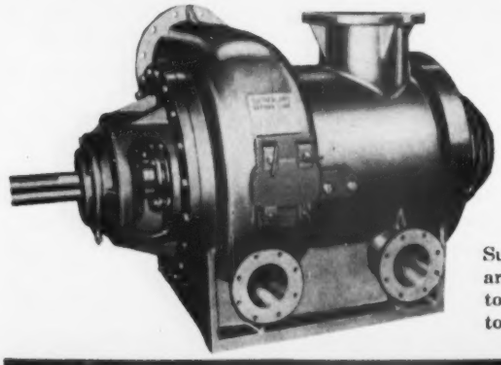
increased yield of usable fibers . . .

a cleaner sheet . . . . .

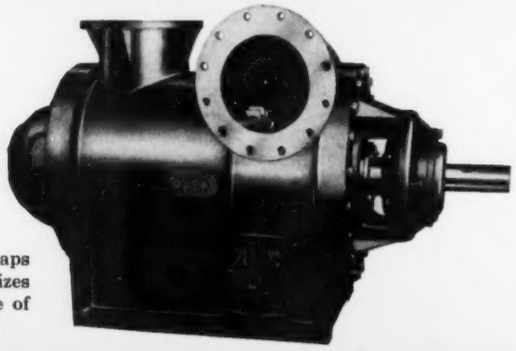


Breaker trap installed between blow tank and washers increases yield of usable fibers, decreases screen loss, improves washing.

Breaker trap defibers broke effectively and efficiently, maintains pulp quality.

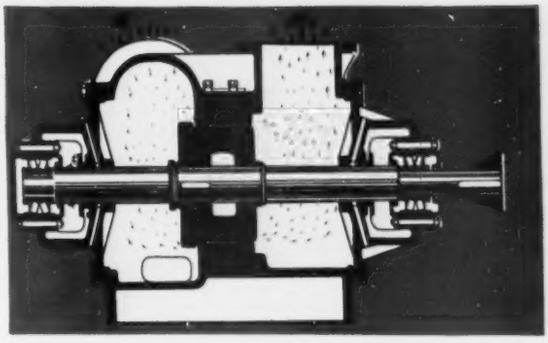


Sutherland breaker traps are available in three sizes to cover a wide range of tonnage requirements.



with the SUTHERLAND BREAKER TRAP
at a saving in power costs

The Sutherland Breaker Trap was specifically designed to do a job that had, previously, been done haphazardly by a variety of methods. Since it is designed *for the job* it means improved efficiency and operating economy, a fact that is being continually demonstrated in actual mill operations.



Cut away view showing operation of Sutherland Breaker Trap.

WHAT THE SUTHERLAND BREAKER TRAP DOES:

1. **Selectively defibers pulps, reducing oversize fiber bundles and thus increasing the yield of usable fibers.**
2. **Protects itself and the equipment that follows by removing large particles of both magnetic and non-magnetic tramp metal by centrifugal action.**
3. **Leaves intact other waste materials such as large dirt particles, cellophane, etc., so that they may be removed by standard screening methods, thus making for cleaner sheet.**

POWER COSTS

Since the Sutherland Breaker Trap is specifically built for these operations, it yields a substantial power saving over other equipment.

WRITE FOR ILLUSTRATED BOOKLET EXPLAINING OPERATION AND ADVANTAGES IN DETAIL.

APPLICATIONS

In the Pulp Mill:

High yield kraft

Defibering kraft pulps prior to washing

Following the Pulper:

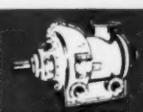
Defibering waste papers

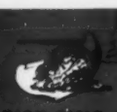
Defibering dried pulps

Defibering broke

SUTHERLAND REFINER CORPORATION

TRENTON 8, NEW JERSEY





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VALLEY IRON WORKS CO., APPLETON, WISCONSIN

ACROSS A THIN STRIP OF PAPER TAPE slightly less than three-fourths of an inch wide, moves the news that travels via teletype—in Government agencies, the Armed Forces, business offices and plants throughout the U. S.

Teletype tape called for a carefully engineered pulp that would meet many requirements—tensile strength that would resist tear yet not wear out the perforation pins . . . a minimum of fuzz and lint . . . the right amount of oil impregnation for speedy movement through the machines.

Engineered papers require the *right* pulps.

Coming up with the *right* pulps for special papers is a job the experts of our Technical Service Division have been doing for more than half a century. If you have a paper problem, perhaps they can help you, too.

Write to Dept. PC-3 in our Boston office.

BROWN COMPANY, Berlin, New Hampshire
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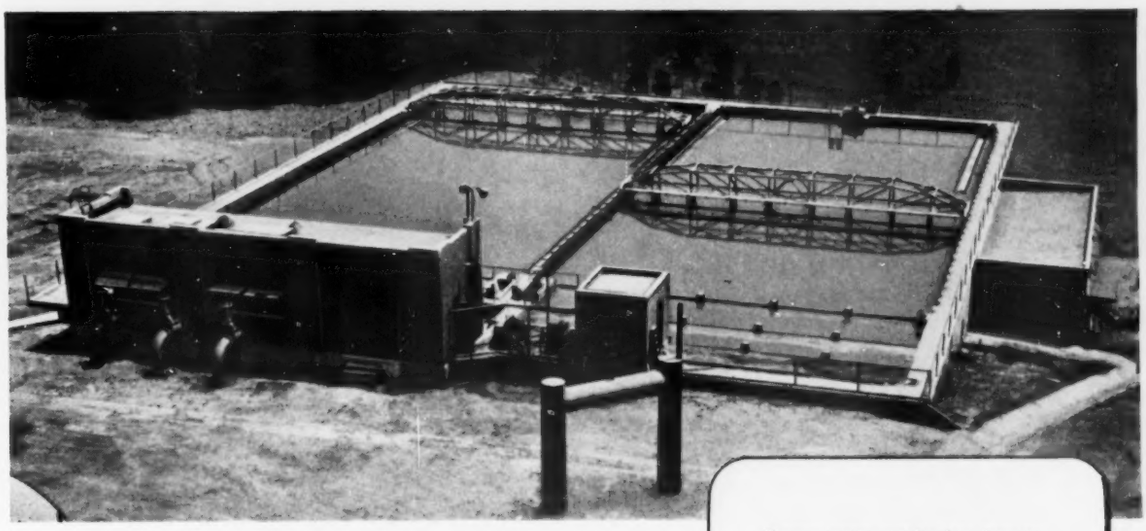
No Two Fingerprints Alike



No two water treatment problems are alike, either . . .

Ask any pulp mill operator. Chances are his water treatment problem isn't like yours.

First there is the problem of raw water characteristics. Rate of flow is important. And of course, the final result you need can only be accomplished by combining a good engineering knowledge with the proper types of equipment.

In mills throughout the world, many pulp producers have found it good business to put Dorr's experience to work. Whether your problem has to do with conventional or high rate treatment, write to us outlining your general requirements. Or, if you would like more information about the many types of Dorr equipment available, ask us to send you a copy of Bulletin No. 9141. THE DORR COMPANY, Stamford, Conn.

Process water must be free from turbidity in the production of kraft liner board. After a detailed study of methods for treating Ocmulgee River water, Macon Kraft Co., Macon, Georgia, uses this Dorr-equipped plant to answer the specific problem. Included in the installation are a Dorrco Flash Mixer, two Dorrco Flocculators* and two Dorrco Monorakes*. Effluent from the Monorakes flows by gravity to a clear well, from which it is pumped to the plant.

* Reg. U.S. Pat. Off.

Every day, nearly 8 billion gallons of water are treated by Dorr equipment.

DORRCO

Better tools TODAY to meet tomorrow's demand

DORR

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Winning combination

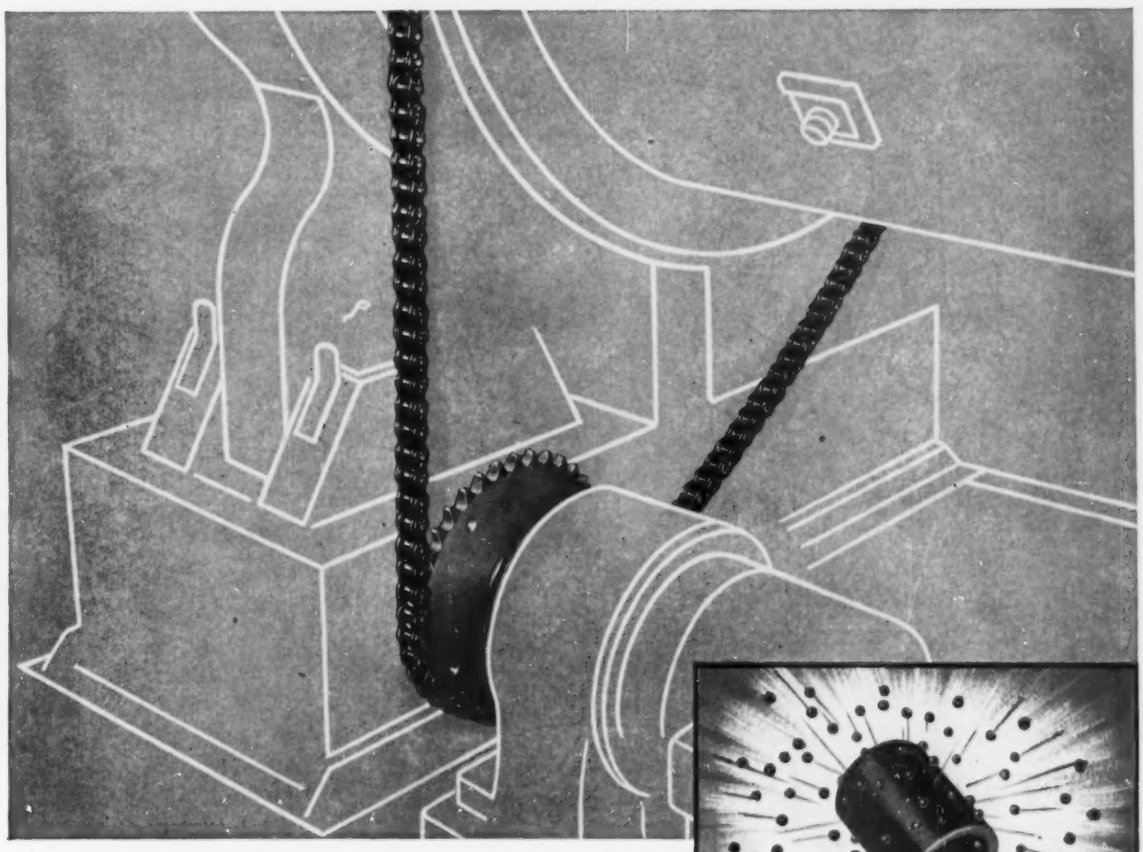
Craftsmanship, quality control, and unique conditioning all combine to make ASTENS ace-high with papermakers.

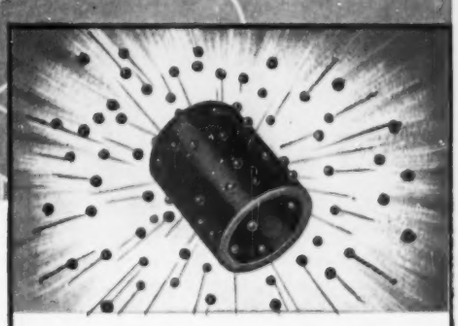
Economy in the long run

ASTEN-HILL MFG. CO.
PHILADELPHIA, PENNA.

ASTEN-HILL LIMITED
VALLEYFIELD, QUEBEC

Yes, SHOT-PEENED rollers add fatigue life to your roller chain





Look for the distinguishing darkened rollers. Thousands of tiny steel balls hammer the metal—"cold work" each roller . . . pay off in extra fatigue life . . . added ability to withstand shock and impact.

. . . just one of the extra-life features you get with every LINK-BELT Roller Chain

WHETHER it's for drive or conveyor service, every Link-Belt Roller Chain gives you a performance bonus. In addition to shot-peened rollers, lock-type bushings multiply capacity to withstand shock loading. And closer heat-treat control, rigid testing and thorough inspection pay off in greater uniformity . . . extra years of life. Link-Belt Precision Steel Roller Chain is built in single or multiple widths, ⅜″ through 3″ pitch. Double pitch 1″ through 3″. A call to your nearby Link-Belt office will bring you prompt, expert service. Send for Engineering Data Book No. 2457.

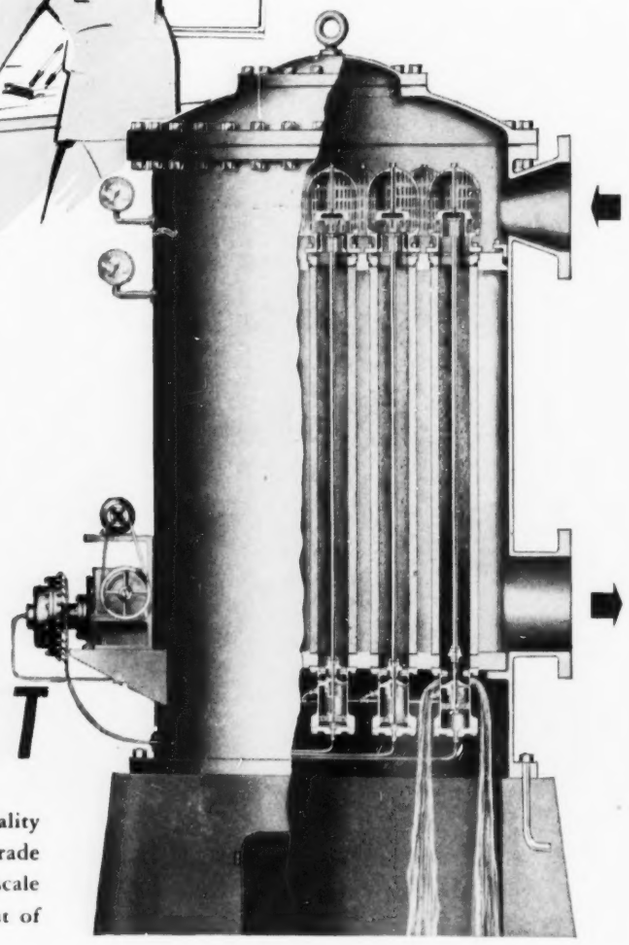
12.110

LINK-BELT

ROLLER CHAIN & SPROCKETS

LINK-BELT COMPANY: Plants: Chicago, Indianapolis, Philadelphia, Colmar, Pa., Atlanta, Houston, Minneapolis, San Francisco, Los Angeles, Seattle, Toronto, Springs (South Africa), Sydney (Australia). Sales Offices, Factory Branch Stores and Distributors in Principal Cities.

CLEAN PAPER GETS THE *PRICE*



ADAMS

WATER FILTRATION GETS THE *DIRT*

In kraft or tissue, book or newsprint—water quality is as critical as chip quality. No matter what grade of pulp or paper you make, sand, grit and pipe scale are expensive when they keep your product out of the top price brackets.

Water filtration with the fully automatic Adams Poro-Screen or Poro-Stone Filter takes out price-lowering impurities *before* they become part of the stock. Continuous backwashing effectively prevents clogging of filter elements – avoids costly, cumbersome cleaning operations.

Remember—in its early stages your product is about 98% water, and most water-borne impurities stay with the stock.

Find out what Adams filtration has done in situations like yours. Write for the new 20 page booklet on water filtration in the Pulp and Paper Industry, Bulletin No. 691.

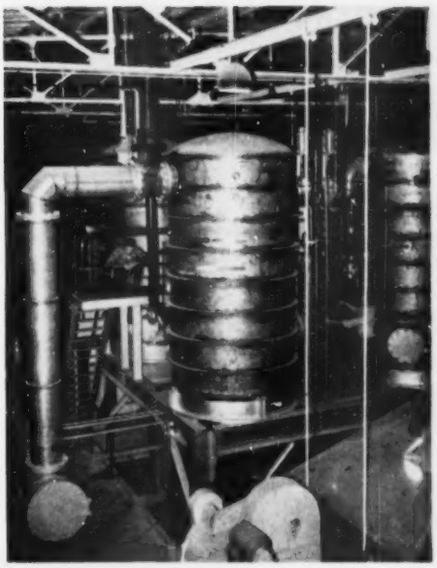
R. P. ADAMS COMPANY, INC.

210 EAST PARK DRIVE, BUFFALO 17, N. Y.

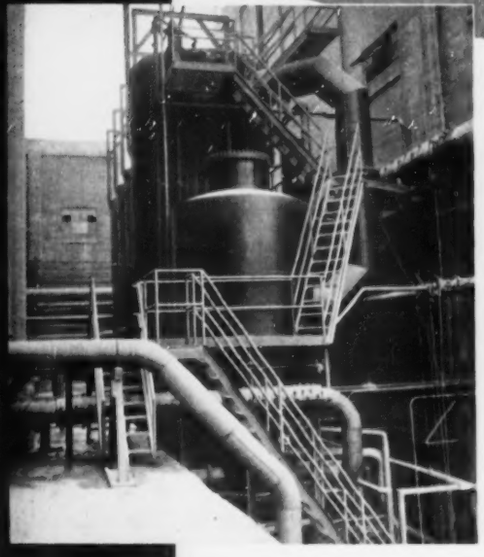
dependable process equipment built to fit your needs

CONKEY EVAPORATORS

for waste liquor concentration



FOR WASTE SULPHITE LIQUOR—Conkey Flat Plate Evaporator with Rosenblad Switching System is noted for continuous evaporation of sulphite pulp mill waste liquors. Self-cleansing action washes away accumulated scale by condensate wash of *all* parts, making possible continuous capacity operation.



FOR BLACK LIQUOR—Conkey Long Tube Film Type Evaporator is widely used for waste liquors whose concentration does not require mechanical cleaning of heating surfaces for scale removal. Provides a net positive gain in evaporation by reducing pressure drop losses between effects.

PROCESS EQUIPMENT DIVISION GENERAL AMERICAN TRADE MARK

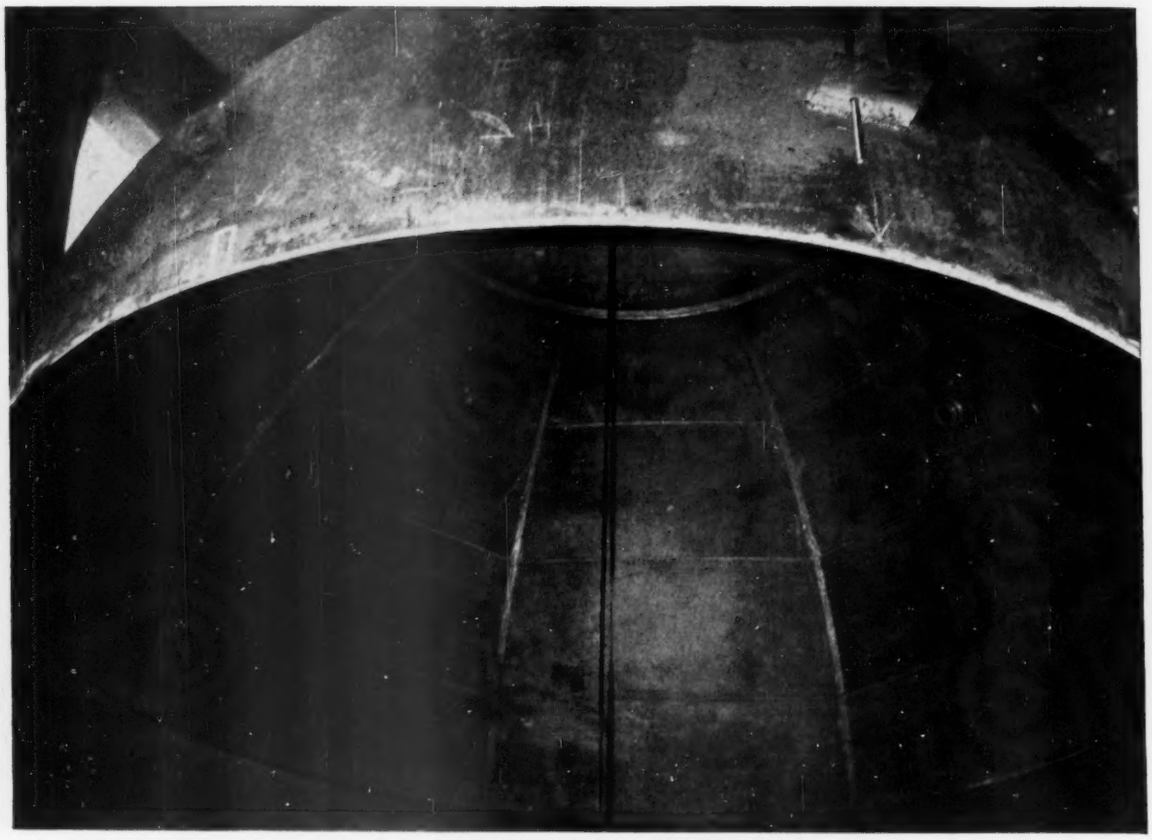
Process Equipment Division

Send for latest bulletin on Evaporators

GENERAL AMERICAN TRANSPORTATION CORPORATION

Sales Office: 10 East 49th Street, New York 17, New York
General Offices: 135 South La Salle Street, Chicago 90, Illinois
In Canada: Canadian Locomotive Company, Ltd., Kingston, Ontario
OFFICES IN ALL PRINCIPAL CITIES

Other General American Equipment: Turbo-Mixers • Filters • Dewaterers
Towers • Tanks • Bins • Dryers • Pressure Vessels



Dome section of world's largest sulphite digester, SMITHlined with Hastelloy alloy F.

Sulphite Digesters SMITHlined with Hastelloy* Alloy F Overcome Dome Pitting Problems

Sections of the above digester dome being arc welded together in the A. O. Smith vessel shop.

For many years, A. O. Smith research engineers have been working on the corrosion problems that beset digesters in the acid pulping phase of paper manufacture. Most alloys that are satisfactory when in contact with the liquor, suffer severe pitting from corrosive action of the vapor in the digester dome.

Extensive experience with the nickel-base alloy, Hastelloy alloy F, in laboratory programs and field exposure tests, suggested its use for sulphite digesters.

Three years of field service tests confirmed our belief that Hastelloy alloy F provides a long sought solution to the problem of vapor pitting.

The metallurgical characteristics of Hastelloy alloy F are *ideally suited for the SMITHlining process* of resistance Welding. (SMITHlining is the closely controlled resistance welding process of inseparably bonding alloy sheets to carbon steel digester walls.) A. O. Smith also *developed special coated electrodes* for metallic arc welding to assure a completely uniform Hastelloy alloy F lining.

This is just one example of our efforts to help the Paper Industry solve its digester problems. The data accumulated from our comprehensive laboratory and field testing programs is available to you. Consult A. O. Smith on your digester problems.

*Registered Trade Name of Haynes Stellite Company, a Division of Union Carbide & Carbon Corp

Digester sections being assembled prior to erection at the paper mill. Completed it will be 58 feet high, with 19-foot inside diameter.

A.O.Smith
CORPORATION

VESSELS • HEAT EXCHANGERS

Chicago 4 • Cleveland 15 • Dallas 2 • Denver 2 • Houston 2 • Los Angeles 22
Midland 5, Texas • New Orleans 12 • New York 17 • Pittsburgh 19
San Francisco 4 • Seattle 1 • Tulsa 3 • Washington 6, D.C.
International Division: Milwaukee 1

When You Cut Paper with

SIMONDS

MIRROR-FINISH

KNIVES

Yes—SIMONDS "Red Streak" Knives have a super-smooth finish on the all-important *face side* . . . a gleaming, mirror-like surface that runs right up from the razor-sharp cutting edge. It's this polished, lustrous finish produced on massive vibration-free machines, *plus* exactly the right face taper, that eliminates drag against stock, reduces knife strain, assures freer, cleaner cuts.

What's more, these knives are made to rigid, high standards of uniformity and accuracy, not only in thickness but in straightness of cutting edge, end to end. Made of Simonds own S-301 Steel, you can bank on "Red Streak" Knives for straighter, smoother cuts, for more cuts between grinds, for long, trouble-free service. Buy through your Simonds dealer.

SIMONDS
SAW AND STEEL CO.
FITCHBURG, MASS.

Factory Branches in Boston, Chicago, San Francisco and Portland, Oregon.
Canadian Factory in Montreal, Que.
Simonds Divisions: Simonds Steel Mill, Lockport, N. Y.,
Simonds Abrasive Co., Phila., Pa. and Arvida, Que., Canada

You could hardly find a pulp or paper mill...

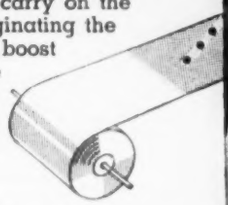
...for which instrumentation was not engineered at

FOXBORO

Process control instrumentation for nearly every leading pulp and paper mill in the United States and Canada has been *engineered at Foxboro.* The reason is simple. Foxboro engineering is based on acknowledged leadership — in knowledge of the industry's requirements, in research, in application experience, in product design and diversity.

In the labs and on the drawing boards at Foxboro, today, are tomorrow's developments for pulp and paper processes . . . developments that will carry on the Foxboro *tradition* of originating the instrument systems that boost production and increase quality and uniformity throughout the industry.

The Foxboro Company,
993 Neponset Avenue
Foxboro, Mass., U.S.A.



In the plans for nearly every modern mill, many hours of creative engineering work like this . . . AT FOXBORO . . . have played a vital part.

Leading mills know that extensive use of advanced instrumentation leads to operating efficiencies never before possible. Significantly, of the industry's newest mills, an overwhelming majority selected Foxboro to engineer and supply mill-wide instrumentation. Typical examples include:

*Rayonier, Inc., Doctortown, Ga.
*Buckeye Cellulose Corp., Perry, Fla.
Riegel Carolina Corp., Acme, N. C.
Brown Co., Berlin, N. H.
Southern Paperboard Corp., Port Wenthworth, Ga.
Macon Kraft Company, Macon, Ga.
Weyerhaeuser, Pulp Div., Longview, Wash.
Weyerhaeuser, Pulp Div., Springfield, Ore.
Marathon Paper Mills of Canada, Ltd., Marathon, Ont.
Long Lac Pulp & Paper Co., Ltd., Terrace Bay, Ont.
Columbia Cellulose Co., Ltd., Watson Island, B. C.
Sorg Pulp Co., Ltd., Port Mellon, B. C.
St. Lawrence Corp., Ltd., Red Rock, Ont.
Fraser Companies, Ltd., Newcastle, N. B.
MacMillan & Bloedel, Ltd.,
Harmac Div., Nanaimo, B. C.

*Under construction

FOXBORO
REG. U.S. PAT. OFF.

Pulp and Paper Mill INSTRUMENTATION

FACTORIES IN THE UNITED STATES, CANADA AND ENGLAND

For *friendly* technical help on chemical problems, call on HOOKER

If you are planning or building a new mill, your Hooker technical service man can help you:

- arrive at chemical requirements
- determine how chlorine and caustic soda will be handled
- select equipment and check plant construction
- test chlorine lines
- make preliminary batch of bleach liquor
- start evaporators and other equipment

On a mill already in operation, your Hooker man can serve you by:

- checking quality and quantity of chemical shipments on arrival
- offering helpful advice when you are changing a process
- developing safety programs, in cooperation with your engineering department, plant employees, and local authorities
- providing helpful tips on bleach liquor making, reducing sludge losses, pulp washing
- assisting on color reversion problems

Behind Hooker technical service is a record of nearly 50 years in supplying your industry with chlorine, caustic soda, and other chemicals of uniform dependable quality.

Call us now - **Let us serve you often.**

New 76-Page Manual

Describes pulp chlorination, production of lime bleach, preparation of soda bleach, analysis of hypochlorite solutions, equipment and methods for handling chlorine, and Hooker services available. For your free copy, write on your business letterhead to Hooker Electrochemical Company, 2 Union Street, Niagara Falls, N. Y.

From the Salt of the Earth

HOOKER ELECTROCHEMICAL COMPANY

NIAGARA FALLS • TACOMA • NEW YORK • CHICAGO • LOS ANGELES

HOOKER CHEMICALS

2-1032

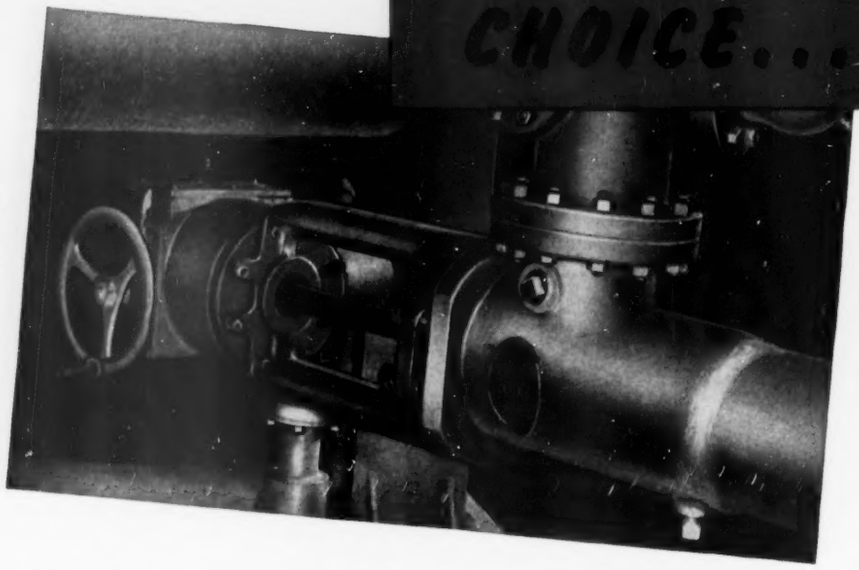
HYDRAULIC-OPERATED

Yarway Digester Blow Valve—one of six installed at large North Carolina paper mill.

TAKE YOUR CHOICE...

MOTOR-OPERATED

Yarway Digester Blow Valve—one of eight installed at large Canadian paper mill.



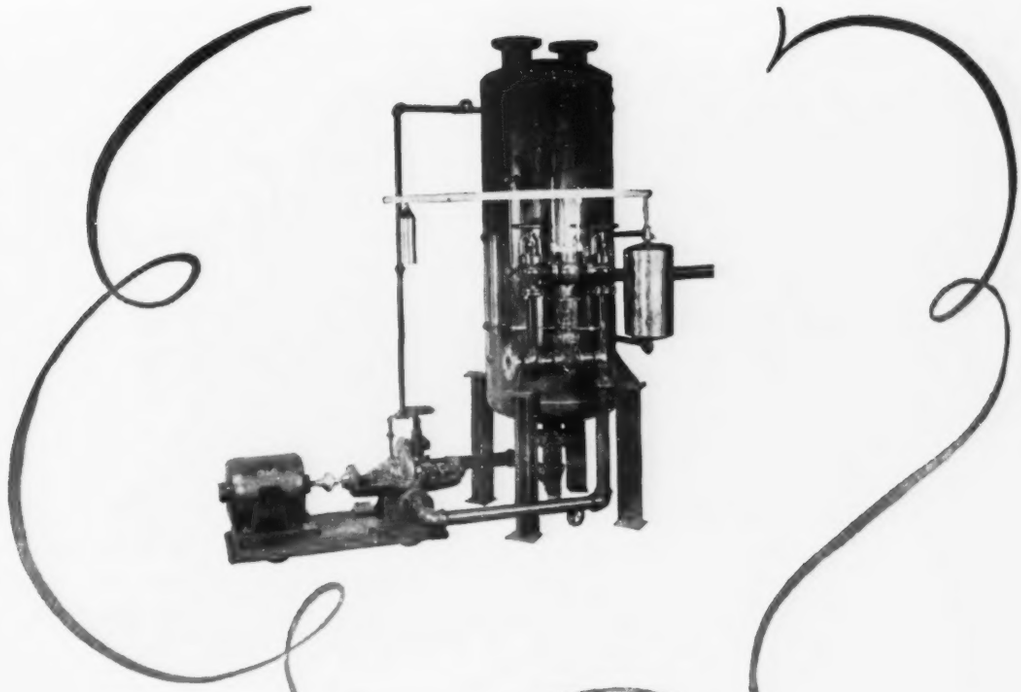
You can choose between hydraulic-operation and motor-operation when you specify Yarway Digester Blow Valves. Both combine all the following Yarway advantages:

- Remote control, usually from above, on the operating floor.
- Tight shut-off. Effective sealing under full digester pressure. Saves cooking liquor. Insures thorough pulp cooking.
- Free discharge. No pockets. Full discharge with minimum pressure drop. Digester blows clean.
- Rugged construction. Built to withstand shock and wear of toughest service.
- Modern metallurgy—such as sliding plunger of hardened stainless steel and sleeve of chromium nickel—resists wear and chemical action.

For full details, write for Yarway Bulletin B-440.

YARNALL-WARING COMPANY
103 Mermaid Avenue • Philadelphia 18, Pa.
Branch Offices in Principal Cities

YARWAY DIGESTER BLOW VALVES



where there's smoke there's bound to be fire

Here's a quality builder, tonnage booster, steam saver and all-round money maker that has long since become standard equipment on all new paper machines and on many of the older ones—Fulton Dryer Drainage on the Dryer Section.

Already close to 1000 such systems are in service—unshakable and absolute proof that Fulton Dryer Drainage is an indispensable drying aid. Surely where there's so much smoke there must be fire.

The foregoing is not addressed to Superintendents with the more modern machines under their command for they have Fulton Systems. Rather, it is aimed at the top executives and Superintendents operating older machines—pitched to reach mills with smaller machines. It is there that the hesitation is greatest, the need of better drying conditions most pressing.

If we of Midwest-Fulton can prompt you of the older mills, and you of the smaller mills, to investigate Fulton Dryer Drainage, you'll want Fulton Dryer Drainage. If you'll study it on some of the 1000 machines that have it, you'll go still further and demand it.

- **Applicable to older and smaller machines? Absolutely yes.**
- **Too costly? No. The cost (in the form of loss) is incurred by being without it.**

Get Technical Bulletin—Now

A typical Fulton Sectional Drainage Unit for small machines.

10% to 30% production increase.

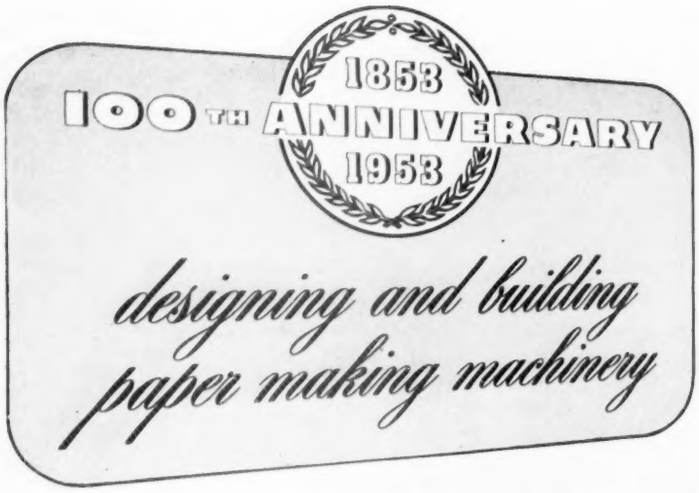
Positive reduction in steam costs—even with tonnage gains.

Improved quality. Uniform drying. Less cockle or curl.

Moisture content control. No over-drying.

Engineering survey-machine study. No obligation.

THE MIDWEST • FULTON MACHINE CO.
DAYTON 3, OHIO



Actually, our company was founded in the spring of 1823 by George Goulding. Being a mechanical genius, he was called upon to build and install all kinds of machinery for the many industries that were rapidly springing up in this country.

The increasing demand of building machinery for the papermaking industry that was rapidly establishing itself in Northern New York, and when more capital and more executive ability was needed, George Goulding formed a partnership of Goulding, Bagley & Sewall in 1853. The new co-partnership prospered and continued to expand.

The continuous production of machinery for the papermaking industry resulted in becoming the principle product of the company. A tribute to the initiative of the company and its employees, was the many new developments in machinery that marked the March of Progress of the papermaking industry. The company built the first Voelter grinder made in the United States—the first spring wet machine to handle the pulp from these grinders —and later, a machine capable of producing paper continuously at 1000 lineal feet per minute.

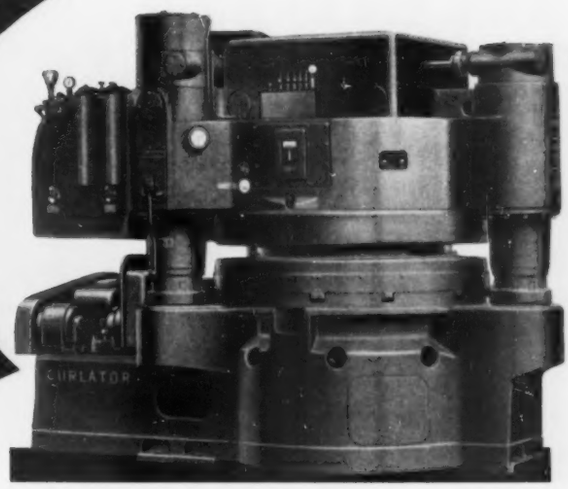
We are justly proud of having been a leader in the March of Progress in the development of the paper industry. So it is in this year of 1953, we celebrate 100 years of service to the paper industry and look forward to the beginning of a second century of continued progressive service.

BAGLEY & SEWALL

WATERTOWN • NEW YORK

Foreign Representative • **CASTLE AND OVERTON, Inc., 630 Fifth Avenue, New York 20, N.Y.**

ANOTHER BIG REASON for installing A CURLATOR



14 LEADING MILLS ARE NOW CURLATING THEIR PULP

Since the Curlator was first announced in 1949 fourteen leading pulp and paper mills in the United States and Canada have installed them. Five mills have made multiple installations (one mill having eight Curlators). Proof in itself that Curlation improves paper qualities, saves wood, cuts costs. If your mill isn't Curlating pulp it will pay you to investigate, for only a Curlator can give you all these benefits:

INCREASED YIELD OF 5% is common in many normal pulps, since Curlation eliminates No. 2 pulp and fine screen rejects... converts shives and fiber bundles into No. 1 pulp. 65% yield in news sulphite is thoroughly practical.

INCREASED TEARING STRENGTH is imparted to paper made from Curlated pulp because fibers are given a permanent bend and twist. Tearing strength has been increased up to 60%.

FREENESS is retained because Curlation can not cut fiber. Curlator patented action rolls fiber and fiber bundles under pressure . . . imparts a permanent bend and twist.

WRITE for more detailed information. See the finer paper that can be made from your own pulp.

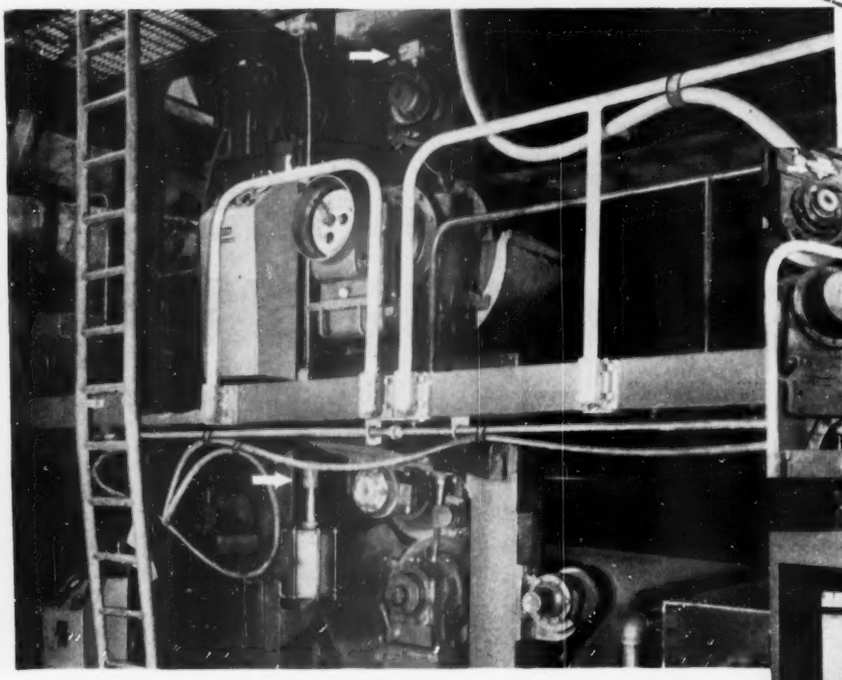
CURLATOR† Corporation
EAST ROCHESTER, NEW YORK

†T.M. Reg.—Curlator Corporation, East Rochester, New York

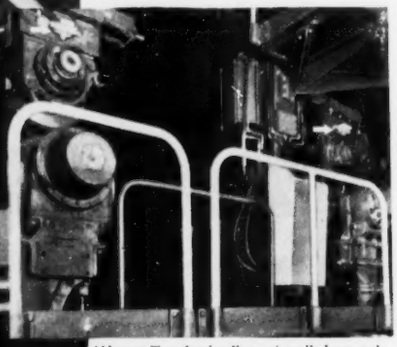
Canadian Representative—Homad Services, Ltd., Montreal

THE KEY TO ACCURATE CONTROLLING AND RECORDING OF ROLL PRESSURES

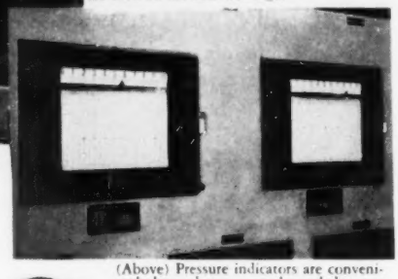
Downingtown Load Meters



(Left) Close up view of a Downingtown Suction Drum Press with load cells indicated by arrows. Cells are mounted between top arm and bearing housings. Similar cells are installed on back bearings. Lower Suction Extractor has load cell connected in air cylinder rod.



(Above) Two load cells are installed on each of the rolls indicated by arrows. Identical cells are used on the back bearings.



(Above) Pressure indicators are conveniently located near control panels but can be placed anywhere in the building. Provision can be made to accommodate future load cell installations.

More and more paper and board manufacturers are turning to Downingtown Load Meters for indicating, recording or automatic control of pressure and tension. While the installation shown here consists of Load Meters, on a paper machine wet end, they are being used to control pressure wherever it exists between two rolls and also to indicate wire tension. They may also be used to record felt tension and other applications where loading and tension are factors. In the particular section illustrated here, twenty-six load cells are used.

The advantages of automatically indicating, controlling and recording roll pressures are fairly obvious. But the great advantage of using Downingtown Load Meters is in their simplicity of operation and installation . . . their freedom of influence from mechanical maladjustments, temperature and moisture . . . and their flexibility which allows installations to meet any variety of mill conditions.

A Downingtown bulletin is available which describes the Load Meter and its operation in detail. Write for it or consult your Downingtown Sales Representative.

DOWNINGTOWN MANUFACTURING CO.
DOWNINGTOWN, PA.

West Coast Representative:
John V. Roslund, Pacific Building
Portland 4, Oregon

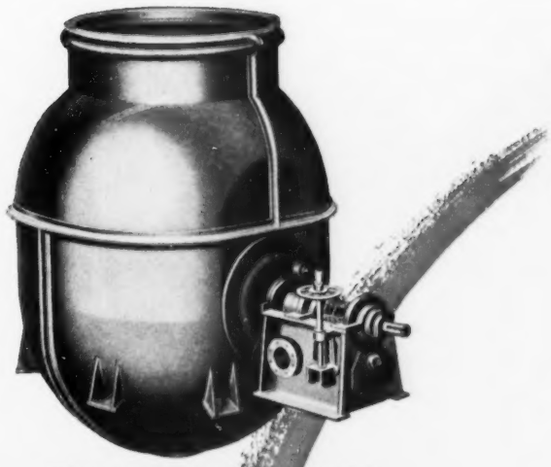
DOWNINGTOWN
LOAD METERS
MODERNIZATION IS PROFITABLE

DESIGNERS AND BUILDERS OF PAPER, BOARD AND FELT MACHINES SINCE 1880

Morden-ize

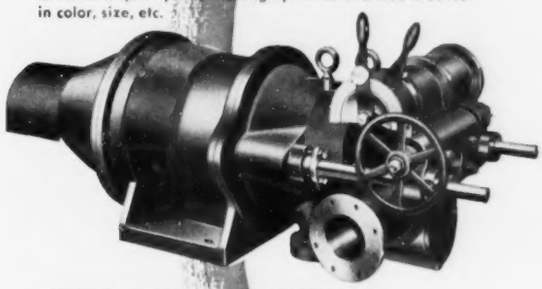
YOUR STOCK PREPARATION

WITH Morden { SLUSH-MAKERS / STOCK-MAKERS / STUFF-MAKERS



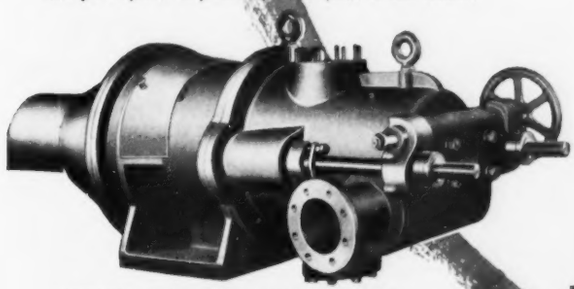
MORDEN "SLUSH-MAKER" FOR PULPING

The "Slush-Maker's" side-mounted rotor quickly and efficiently slushes a full charge of pulp, broke or waste paper, either batch or continuous. The rotor's combination pumping, shredding and brushing blades continually direct the charge at right angles against the attritioning ring, where a controlled bar-to-bar brushing completely clears all flakes and bundles, even high wet strength, without damage to the fibers. The "Slush-Maker's" positive-flow circulation quickly and thoroughly mixes and also brushes in color, size, etc.



MORDEN "STOCK-MAKER" FOR BEATING

The "Stock-Maker" with its 360° bed plate gives the maximum of brushing, fibrillating, beating or hydrating treatment with the minimum of cutting. The "Stock-Maker" operates on a continuous-flow basis from chest to chest or chest to stuff box. The reverse-flow, sealed pressure treatment of one "Stock-Maker" will duplicate or improve upon the stock treatment of two or three conventional beaters and yet requires only one third the space of one beater.



MORDEN "STUFF-MAKER" FOR JORDANING

The "Stuff-Maker" utilizes the "Stock-Maker's" well proven construction features but provides a "jordan-type" flow, for shortening or cutting the stuff when required.

Experience with nearly 700 Morden Machines in 175 mills on all types of pulp and grades of paper proves that:

These three Morden Machines are especially designed, each to excel in one of the three phases of stock preparation—pulping, beating or jordaning.

Each of these Morden Machines is engineered for the utmost in efficiency, simplicity, versatility and economy of operation.

These Morden Machines are designed to fit readily into all types of stock preparation systems and can be used together or in combination with existing equipment to give efficiently the various treatments required for developing the most in each furnish.

Let us know of your interest, and we will gladly provide detailed information on how to advantageously Morden-ize your stock preparation system.

MORDEN
STOCK PREPARATION EQUIPMENT
MACHINES COMPANY

Corbett Building, Portland, Oregon.

What'll you have...

1 revolving disc or 2?

This is a rhetorical question—a question not intended to elicit a direct answer, but to provoke thought.

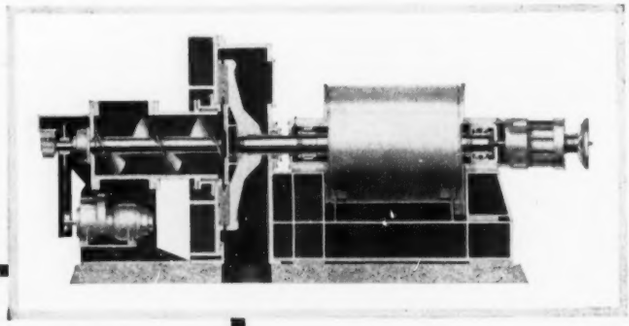
We make refiners with single or double revolving discs. Both types, of precision design, are illustrated on this page.

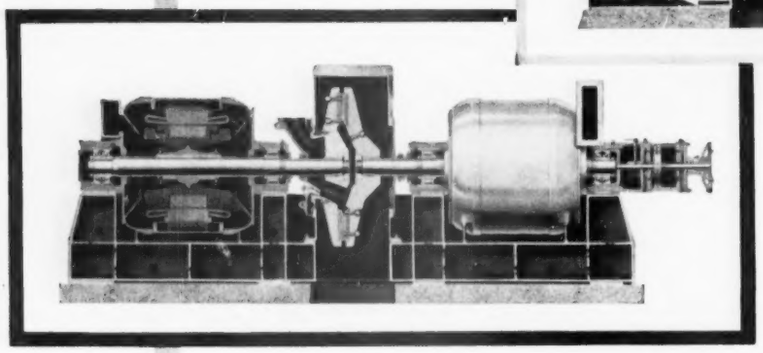
Generally speaking, the single revolving disc refiner, operating at relatively low speed, is employed when the objective is mullen development, while the double revolving disc refiner is used at higher speeds when the main requirement is defibering or dispersing.

But many considerations enter into the selection of the refiner or refiners for a particular situation. We can usually make a proposal based on experience. If not, we find the answer by running tests on commercial machines in our research laboratory.

Hundreds of Bauer disc machines are contributing toward better and more economical products in pulp and paper mills all over the world. We'll be glad to give you specific information.

Bauer No. 510 Single Revolving Disc Refiner. Both the revolving and stationary discs are 40" dia. Five other models and sizes from 8" to 48" dia. with 10 to 750 h.p. motors.





Bauer No. 410 Double Revolving Disc Refiner. Both discs 40" dia.; two 400 h.p. motors. Three other models and sizes from 24" to 36" dia., each with two motors totaling 50 to 400 h.p.

THE Bauer BROS. CO.

1706 SHERIDAN AVE.
SPRINGFIELD, OHIO

Can any of these ☑

SOLVAY TECHNICAL BULLETINS

Trade-Mark Reg. U. S. Pat. Off.

help you?

Are you interested in the handling and storage of soda ash? Do you want technical information on caustic soda or liquid chlorine? Or perhaps you're interested in the procedure for the analysis of alkalies. This is just part of the vast store of information that is included in Solvay Technical and Engineering Service Bulletins. And all this extra technical help is yours for the asking.

Throughout American industry, Solvay Technical Bulletins have been accepted as an important source of information on the use and handling of alkalies and associated chemicals. Used in conjunction with your own experience and knowledge, this literature can be a valuable aid in your daily work.

As an important branch of Solvay Technical Service, these bulletins contain authentic information based on actual laboratory research and field service. All material is written by men who are authorities in their respective fields; all the facts are the result of years of experience.

All these Solvay Technical and Engineering Service Bulletins are available free, without any obligation. Fill in and mail the coupon, indicating the bulletins you want.

SOLVAY

SOLVAY PROCESS DIVISION

Allied Chemical & Dye Corporation
61 Broadway, New York 6, N.Y.

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- ☐ No. 14—Chlorine Bleach Solutions
- ☐ No. 16—Calcium Chloride

NAME_____

ORGANIZATION_____

ADDRESS_____

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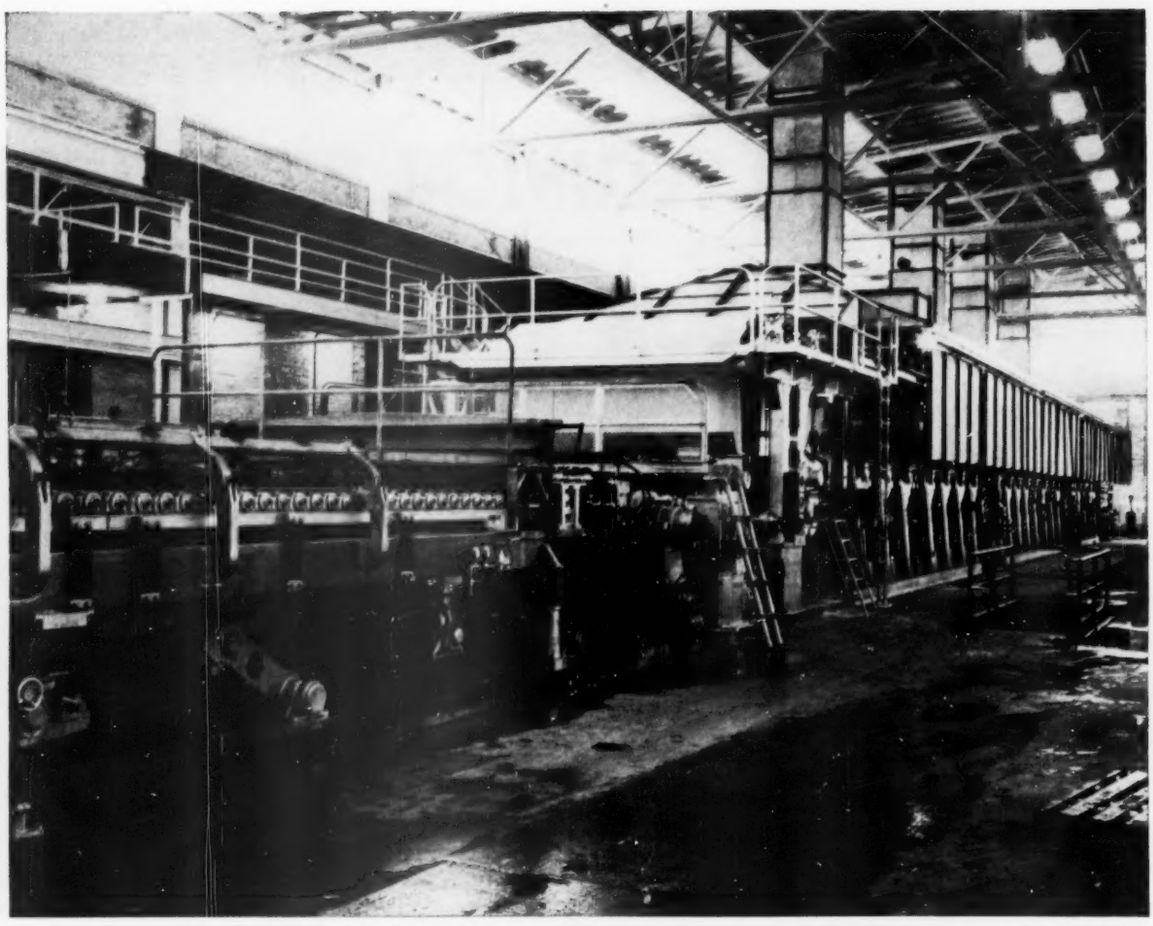
STATE_____ SG-3



This Machine Means Business!

This 130" fourdrinier machine supplies the life blood of American business: bond paper! Without the product it produces, businesses all over America might grind to a slow halt.

Imagine, if you can, a business operated without paper. No paper to write orders on . . . no paper to keep records on . . . no paper to send out bills . . . no paper for correspondence. Without much doubt, it would be pretty tough for any business to operate long without paper.

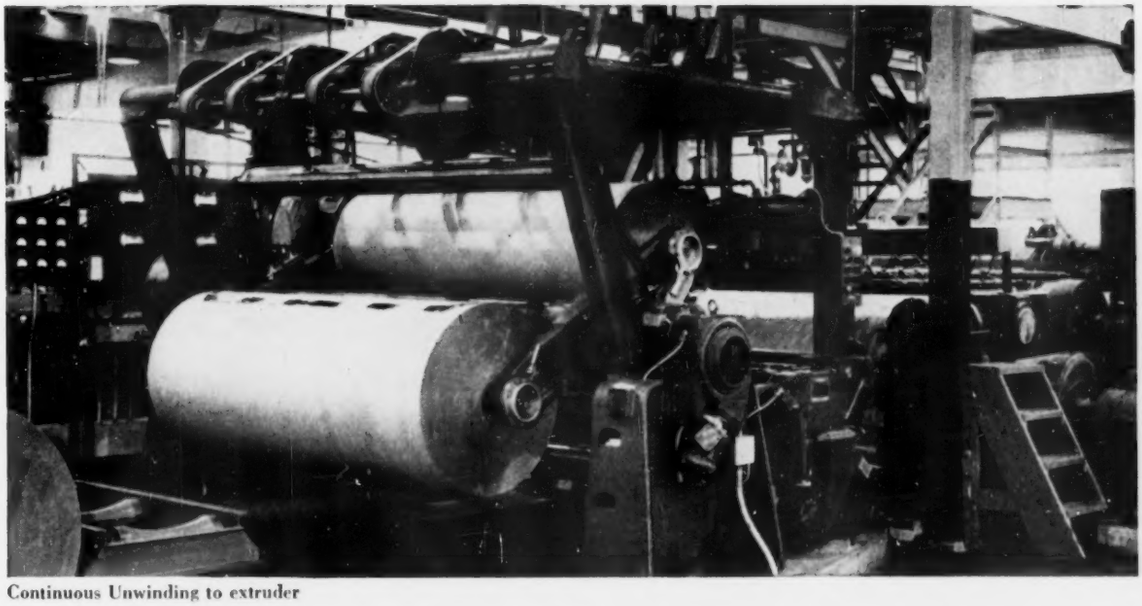
And it would be equally difficult for this fourdrinier to operate without chemicals. Because Spencer Chemical Company supplies an ever-increasing amount of commercial grade anhydrous ammonia to paper mills using the revolutionary ammonium bisulfite process, each new development in this field is studied carefully.

With the completion in 1953 of new works now under construction, Spencer Chemical Company will be in a position to supply ammonia to a number of additional mills planning to go over to the ammonium bisulfite process. If your mill has such plans, perhaps it would be mutually beneficial to talk it over with us.

SPENCER

America's Growing Name In Chemicals

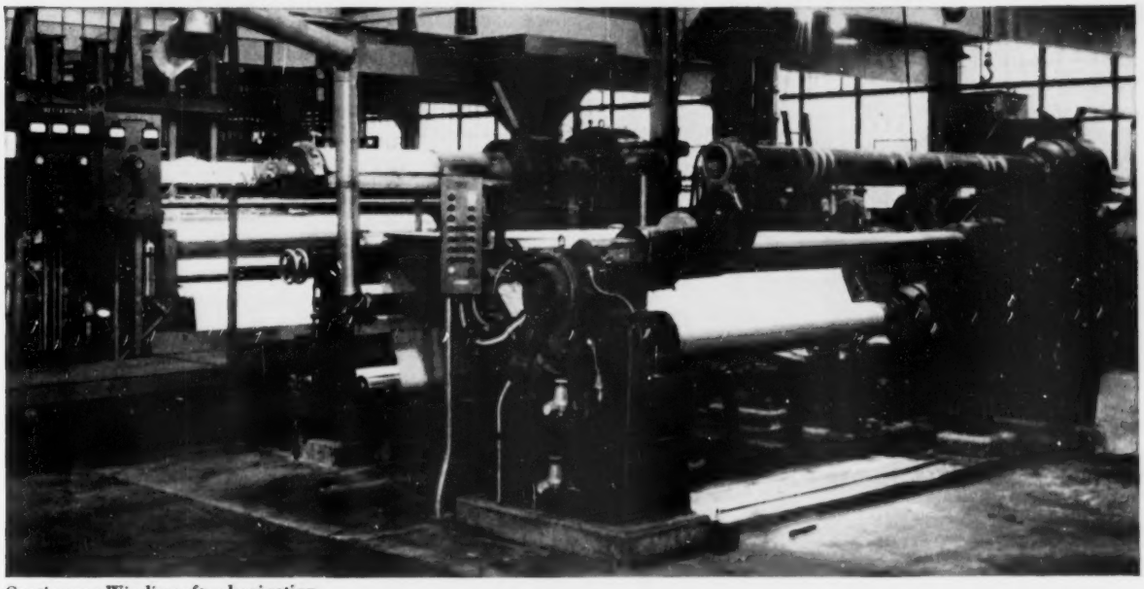
Spencer Chemical Company, Executive and General Sales Offices, Kansas City, Mo. Plants located at Pittsburg, Kans.; Henderson, Ky.; Charlestown, Ind.; Chicago, Ill.; and Vicksburg, Miss. (under construction).



Continuous Unwinding to extruder

Polyethylene Laminated to Paper Without Stops for Roll Changes

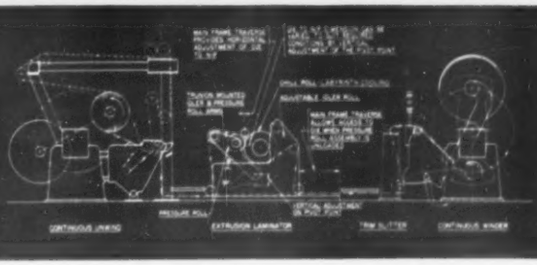
Extruder-Laminator at St. Regis Paper Co., Carthage, N. Y. Employing Kohler System reels; the operation is continuous. ***Write for DOM-8 for details.***



Continuous Winding after lamination

Dilts manufactures complete Polyethylene Laminator for continuous operation.

Dilts
machine works
Fulton, New York
Division of
THE BLACK-CLAWSON COMPANY, Hamilton, Ohio



U. S. MARKET PULP OUTLOOK

By Reed R. Porter
Executive Secretary
Association of Pulp Consumers, Inc.

REED R. PORTER:
—"It is time for restraint. . . ."
But he agrees 1953 should be good year for all concerned.

(Excerpts from his 1953 report to the association.)

As consumers of market pulp, our position now is considerably different than it was a year ago. . . .

It required about one year—from July 1951 through July 1952—to liquidate the accumulated stocks of paperboard, and about six months—March to Sept. 1952—to complete the paper cycle. Once the distribution pipeline was unclogged, however, production began to pick-up, ending the year at quite a satisfactory level.

The big question before us, of course, is where do we go from here. In attempting to answer that, it is first necessary to review basic trends of the principal determining factors, i.e., demand and supply.

Consumption of market pulp by the non-integrated segment in 1952 was in the neighborhood of 2,260,000 tons, a decline of approximately 17% from 1951 and 22% from the record 1950 total. How much of the loss last year was due to a decline in paper production and how much to changes in furnishes, altered purchasing policies on the part of integrated mills (who go into and out of the pulp market depending), or to the conversion to an integrated status is not definitely known. We do know a constant attrition has been going on with the result that practically all growth has shown up in the integrated segment.

It seems significant that more market pulp was consumed in 1939 than in the boom year of 1950, and that 1952 approximated the lowest level in the past 14 years.

Consumption of market pulp has ranged from a high of about 2,900,000 to a low of approximately 2,200,000, a spread of 700,000 tons. It has dropped from 34% of the total in 1939, to 21% by 1946, and to 13% by 1952.

During periods of declining demand for paper products, the non-integrated mill suffers much of the loss, but with the return of full demand these mills regain their former tonnage position, but not their former percentage position. This characteristic sets a definite goal to shoot at in our efforts to stimulate market pulp producing capacity, and it emphasizes the need for alert management and an enlightened inventory program.

U. S. WOOD PULP CONSUMPTION IN PAPER AND BOARD MANUFACTURE
(In Thousands of Short Tons)

	Total Pulp		*Own Pulp*		*Market Pulp*	
Year	*Tons*	*%*	*Tons*	*%*	*Tons*	*%*
1939	8,650	100	5,692	66	2,958	34
1946	12,092	100	9,569	79	2,523	21
1947	13,253	100	10,741	81	2,512	19
1948	14,375	100	11,788	82	2,586	18
1949	13,636	100	11,311	83	2,325	17
1950	16,509	100	13,607	83	2,902	17
1951	17,731	100	14,991	85	2,740	15
1952*	17,180	100	14,920	87	2,260	13

** Preliminary*
Source: U. S. Bureau of the Census

SOURCE OF PAPER GRADE MARKET PULP FOR U. S.*
(In Thousands of Short Tons)

Year	*U.S.*	*%*	*Canada*	*%*	*Europe*	*%*	*Total*
1939	778	31.3	344	13.8	1,368	54.9	2,490
1946	987	44.8	665	30.2	548	25.0	2,200
1948	1,011	40.3	938	37.4	563	22.3	2,512
1950	1,107	39.8	1,014	36.5	659	23.7	2,780
1951	1,136	41.3	1,136	41.3	478	17.4	2,750
1952†	1,040	46.4	860	38.4	340	15.2	2,240

** Excludes exports of U.S. pulp and all imports for own use.*
† Preliminary
Source: U. S. Dept. of Commerce and U. S. Pulp Producers' Association.

In 1952 our pulp consumption dropped over 17% while the remaining segments of the industry declined about 1% from the 1951 level. In 1953 the reverse promises to be true, i.e., our business seems likely to show a far greater increase over last year than the integrated mills. In the fourth quarter market pulp consumption was 19% above the third quarter; imports from Canada increased 10%, and purchases from Europe jumped 167%.

A second justifiable conclusion, it seems to me, is that until such time as there is an assured supply of market pulp on the North American continent, at a price commensurate with industrial costs, overall expansion in mill capacity will be confined largely to the integrated faction.

Twelve years ago it was necessary for us to rely on European production for over half of our supply; in 1952 only 15% of our market pulp came from abroad.

Of particular gratification to us is the slow but steady growth in U.S. market pulp production, despite the inroads made into this supply by paper mills desirous of acquiring their own source of raw material. Numerous market pulp mills have been purchased with a resultant loss to the market pulp supply. We must expect a continuation of this process.

Despite the losses mentioned U.S. market pulp output has increased from around 750,000 tons yearly to 1,100,000 tons, or from 31.3% to 46.4% of the total. During the same period the Canadian contribution to our market supply jumped from 350,000 tons to over 1,000,000 tons; from 13.8% of the total to about 40%.

These two supply sources will be further increased in 1953. Additional U.S. tonnage available between now and fall totals about 150,000 tons annually, all of which will be bleached sulfate; Canadian market pulp supplies will be augmented by an additional 100,000 tons of West Coast bleached kraft and 75,000 tons annually of bleached sulfite, the latter being a conversion from unbleached to bleached. These additions come close to equalling our normal European imports of bleached pulps.

Before attempting to comment on the 1953 outlook, I wish to point out:

1. Despite improvement in the U.S. market bleached pulp supply, we are still dependent upon Scandinavia for much of our unbleached and special purpose pulps. We must continue to use every worthy means at our command to influence a steady supply from this source, at a price which will enable us to operate and compete profitably. As in the recent past, this

may involve federal intervention.

2. We must further develop the already friendly and close liaison with our Canadian neighbors. If my analysis is correct, the pulp producers in that country now are in a transition phase caused by the rapid growth of newsprint and magazine paper production in the U.S., plus the rapid growth of paper consumption at home, and they cannot yet see clearly the road to pursue. Tolerance, patience, and understanding are required. There will be times, of course, when our problems and interests will create strong differences of opinion which can only be settled in the market place. There is no question in my mind that our futures are linked together.

In looking ahead for the balance of 1953, I believe we may expect a satisfactory level of demand, coupled with reasonably stable pulp prices, a combination which promises profitable operations for the majority of the non-integrated producers. The paper inventory cycle seems to have been completed and there appears nothing in the foreseeable future to warrant a repetition of the 1950-51 scramble for supplies. In the meantime, construction of additional pulp facilities is underway.

World Supply and Demand

If prospective world demand for market chemical pulp were to be met solely from current production in 1953, world supply and demand might be in close balance, and regional shortages might even occur during the year. At next open water, however, producers stocks of market pulp in Scandinavia will be high, even by seasonal standards, and these stocks will be an important increment on the supply side of the 1953 ledger. Because of the prospective level of producers' stocks at next open water, we doubt that there will be any serious threat of market pulp shortages during 1953 barring international incidents that might affect trade.

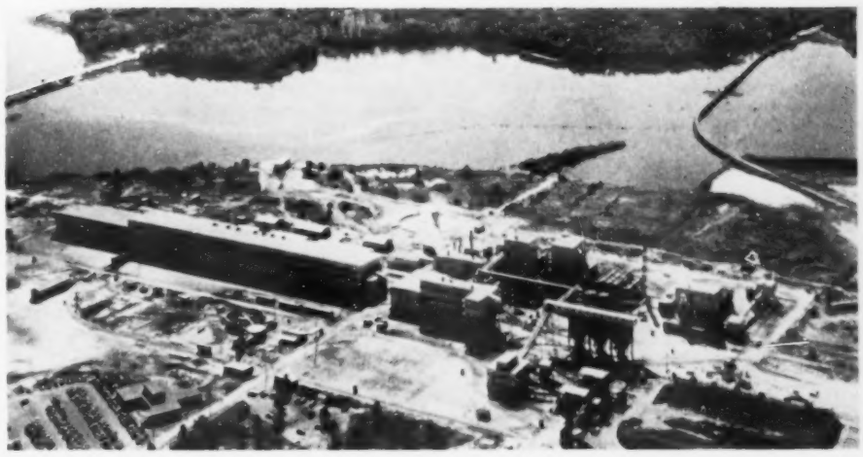
Judging from the numerous optimistic forecasts, apparently few doubt that 1953 will be a good year. If forecasts are justified, no serious decline in commodity prices seems likely. One of the principal assurances of continued sound economic conditions, it seems to me, is the fact that people are thinking of the potentially bearish influences. Understrained optimism now certainly would threaten stability. 1953 appears to be one of those years when self-discipline is needed.

Pulp Forecast

Market pulp supply in 1953 will be steady and high and supply will be adequate for high level production and normal inventory building.

James L. Ritchie, executive director of the U. S. Pulp Producers, made this announcement at a meeting of 71 members and guests of the Specialty Paper & Board Affiliates, at the Waldorf-Astoria, New York, Jan. 22.

A. P. Mitchell of Riegel Paper was elected president, succeeding Henry Savage of I. P. Malcolm Lowe, of Lowe Paper, was elected vice president, and G. D. Cook re-elected secy-treasurer.



AIR VIEW of new St. Regis kraft pulp, paper and board mill at Jacksonville, Florida. This mill has a capacity to produce 100,000 tons of kraft paper annually.

Start-Up of St. Regis Mill at Jacksonville, Fla.

St. Regis Paper has announced start-up of its entirely new kraft pulp paper and board mill at Eastport, northern outskirts of Jacksonville, Fla. It will make 100,000 tons annually, raising company kraft paper and board output to 560,000 tons.

Stevenson & Rubens, Seattle; Johnson & Co., New York and Merritt, Chapman & Scott were project engineers, with all engineering supervised by Justin H. McCarthy, St. Regis chief engineer, and overall supervision under Vice Pres. W. R. Adams. John K. Ferguson, son of the president, is resident manager; John A. McDermott, general superintendent; U. J. Westbrook is manager of production for both Pensacola and the new mill.

At wood and pulp end, major equipment includes Fibre Making Processes barkers, Murray chippers, Link-Belt screens and conveying, four mild steel digesters with Esco circulation and Bristol controls, crane piping and valves, Bauer refiner, Impco brown stock washing with Minneapolis Honeywell control, Wm. Powell valves, Impco deckers, deknotters and flat screens, and Stebbins Semtile chests and linings.

In recovery and power end are two General Electric 6,000 kw turbo-generators, Goslin-Birmingham evaporators, three Combustion Engineering boilers—recovery, oil fired power and barking-burning, Koppers precipitators, Fuller lime and salt cake Airveyors, Jeffrey conveyors, Dorrco causticizing system, Chain Belt water screen, Wallace & Tiernan chlorinator, and Ingersoll-Rand feed water pumps.

The paper mill features are the 230 in. Beloit Fourdrinier with pressure vacuum headbox, vertical type press section and 71 paper dryers and 18 felt dryers in three sections; two Noble & Wood Victory beaters driven by 300 hp General Electric synchronous motors; four Emerson jordans by 400 hp General Electric synchronous motors; Foxboro instruments; Hercules emulsifier; Stebbins wire pit and chest; Goulds stock and water pumps; Oliver saveall; nine Nash vacuum pumps; Vickery felt conditioners; Bird Dirtecs; Midwest-Fulton drainage; Stowe-Woodward covered rolls; Ederer (Seattle) bridge crane; Walter L. Rives (Jacksonville) stainless piping fabrication; Jamar-Olmen and Drew Engineering air systems and hood; Langson slitter-winder; Shartle Bros. Hydrapulper for broke with Rives stainless hopper; Moore & White cutter and layboy, Link-Belt Levelator, Farrell-Birmingham roll grinder and Holley-Edwards (Jacksonville) general supplies.

General Electric provided a sectional drive for the machine with GE electronic Amplidyne regulation including two 1500 hp General Electric motors driving individual generators for all sections. Drives have Farrell-Birmingham reducers.

BLACK-CLAWSON PROMOTIONS

PROMOTIONS and new responsibilities for this trio in THE BLACK-CLAWSON COS. (l to r): RUDY L. KUTTER, B-C Vice Pres., now named General Mgr. He is grad of U. of Cincinnati, was Divisional Sales Mgr. at Hamilton, O. SAM T. WEBER, promoted from Asst. Sales Mgr. to succeed Mr. Kutter as Sales Mgr. He attended Antioch College, was with Oxford Miami and Gardner Board. JOE E. HARTFORD, appointed Asst. Sales Mgr. of B-C Division. An Iowa State alum, he was with U. S. Gypsum and Philip Carey.

Shibley Contest Set For Longview, Wash.

Pacific Coast TAPPI has four papers by young mill technicians entered in the annual Shibley award contest to be held this year at Longview, Wash., on Fri., Mar. 13.

Contest judges are E. Gray King, research director, Puget Pulp (chairman), Fred Weleber, tech. director, Publishers' Paper; R. I. Thieme, tech. director, Soundview Div. of Scott; Joe McCarthy, Univ. of Washington faculty, and E. H. Woodruff, chief chemist, Port Angeles Div. of Rayonier.

Natwick To Manage East Texas Mill

A. G. NATWICK—word reached PULP & PAPER that he will be Manager of new East Texas Pulp & Paper Co.

Word has reached PULP & PAPER that Albert G. "Buff" Natwick, of Camas, Wash., would be manager of the new Evadale, Texas, kraft pulp and paper mill of East Texas Pulp & Paper Co. Construction is to begin this spring.

Mr. Natwick, a native of Wisconsin Rapids, Wis., has been assistant resident manager at Crown Zellerbach's big mill in Camas for many years, after a career that included top positions at Nekoosa-Edwards Paper Co., in Port Edward, Wis., at Alliance Paper Mills in Merriton, Ont., among others.

He recenty was on loan to the National Production Authority where he was director of the Forest Products Division. He had been director of the Pulp, Paper and Paperboard Division in Washington until about two months ago all the forest products industries were merged under his direction.

Olin Undecided On Site For New Pulp Mill

As this issue went to press, Olin Industries and its subsidiary, Frost Lumber Industries, had still not made any decision —at least for publication—as to the site that will be chosen for the new Olin dissolving pulpmill. This was confirmed by contacting Frost officials at Shreveport, La., who said published reports were only "local conjecture." It is assumed the mill will be near one of the Frost sawmills in that area, as the company has announced definitely that it will not build a new sawmill.

Olin Research On Cellulose Broadened

A general research organization for Olin Industries Inc. has been reorganized and broadened under Dr. Fred Oleson, vice president, and undoubtedly will have important effects upon the dissolving pulp mill project now headed up by Robert Evans and Frost Industries executives at Shreveport, La., with plans to construct the mill in that area. Also upon the Ucusta Paper Corp. properties of Olin in North Carolina, where flax papers and wood-pulp-cellophane are made.

There are 45 scientists at work under Dr. Oleson, a noted explosives chemist, at laboratories in New Haven, Conn., and East Alton, Ill. The company has conducted cellulose research at the latter site for many years.

Named head of organic chemical research is Dr. Herman Bruson, formerly with Industrial Rayon Corp., and a top polymer chemist and holder of 280 U. S. chemical patents. Manager of new products is Robert L. Womer, with Olin since 1933 and former associate director of research and development. Dr. Oscar J. Swenson, named manager of chemical engineering research, was professor at Cornell and holds sugar cane patents. Others are named to head armament and petrochemical research.

Crown Zellerbach Plans To Expand in Canada

Crown Zellerbach Corp. is planning on further expansion into Canada J. D. Zellerbach, president, announced with H. J. Mackin, president of Canadian Western Lumber Co., Ltd., "agreement in principle" to a plan whereby Crown Zellerbach would acquire Canadian Western, one of the largest producers of forest products in Canada. The company owns Fraser Mills, B.C., and extensive timberlands in British Columbia and its subsidiary is Comox Logging Co.

Crown Zellerbach may make an offer to the stockholders of Canadian Western to exchange one share of presently authorized but unused common stock of Crown Zellerbach for each six shares of the outstanding stock of Canadian Western. The offer will not be made unless and until Crown Zellerbach completes to its satisfaction an investigation of the business and affairs of Canadian Western and until all legal requirements have been fulfilled. They are partners in the new Elk Falls (B.C.) Co. newsprint mill.

DR. CHARLES CARPENTER, formerly with Southland and N.Y. & Penn., is Technical Adviser to Olin Industries in planning its new dissolving pulp mill in Southwest. He headquarters at Shreveport, La.

Japanese-Alaska Rumor

A rumor was circulating in New York that a deal already is being worked upon to form a Japanese-American company with capital of $20,000,000, half of it from the U. S. Development Bank and the other half from "six leading American cellulose companies" and the Japanese Government, to build a $100,000 tons a year pulp mill in Alaska. PULP & PAPER was advised by a Japanese technical committee that returned from an Alaska tour, where they were primarily interested in a possible lumber plant and pulp maybe in the more distant future, that they knew nothing about it. It was suggested it might be a Wall Street deal that is brewing or a "dream" of a Washington, D.C., agency, still a long way from taking shape. (see Feb. PULP & PAPER, page 52).

J. KIRBY HERNDON, Vice Pres., Kirby Lumber Co., who told PULP & PAPER big new Silsbee, Tex. Lumber Mill will have hydraulic barking, chipping, and will sell chips to paper mills.

Extensive Timber Is Behind New Texas Mill

Behind the new East Texas Pulp & Paper Co., formed by Time-Life publications and Houston Oil Co. of East Texas, who plan to start construction of a new 250 ton kraft paper and paperboard mill at Evadale, Texas, this spring, are a vast supply of raw wood material.

Houston Oil, through a subsidiary, holds over half a million acres of timberland. Another half million acres is held by the Kirby Lumber Co., building a new high capacity modern sawmill at Silsbee, Texas, about ten miles from Evadale. A Hansel Engineering hydraulic log barking installation and a chipping plant is going in at Silsbee and J. Kirby Herndon, vice president of Kirby, Told PULP & PAPER that "chips will be sold to the paper industry." (Which could mean several mills in the area.)

As the map published last month with PULP & PAPER's story on Evadale (page 30—February issue) showed there are existing mills in Texas, and also two or three in Louisiana, that might be buyers of these chips. But the officers of the East Texas Pulp & Paper Co. have already announced that they are contemplating buying chips from Silsbee.

The new plant at Silsbee is being built at cost of over $10,000,000 on a 400-acre site, next to an existing mill and the Kirby company operating headquarters there. This is centrally located as to Kirby timberlands.

As announced last month in these pages, Howard Simons, consulting engineer of Vancouver, B. C., who recently built two market kraft pulp mills on Vancouver Island, has been selected as engineer for the Evadale mill, which will make food container papers and board among other products.

Richard McDonald, of Oakland, Calif., former director of NPA in Washington, D. C., and former executive vice president of Crown Zellerbach, is individually interested and one of the directors of the new project. He is selecting all personnel and making overall organizational and production plans.

Waste Treatment Plant Added at Monroe, Mich.

Consolidated Paper Co., Monroe, Mich., will put the first unit of a waste treatment plant for its North Side Mills into operation in March. Similar units for West Side and South Side Mills were described as operating very satisfactorily. The company operates straw board, box board, test liner and panel board mills at Monroe.

These Versatile, Efficient, Low Cost

BIRD JONSSON SCREENS

Are On The Job All Over The Industry

FIND OUT WHAT THEY CAN DO FOR *You!*

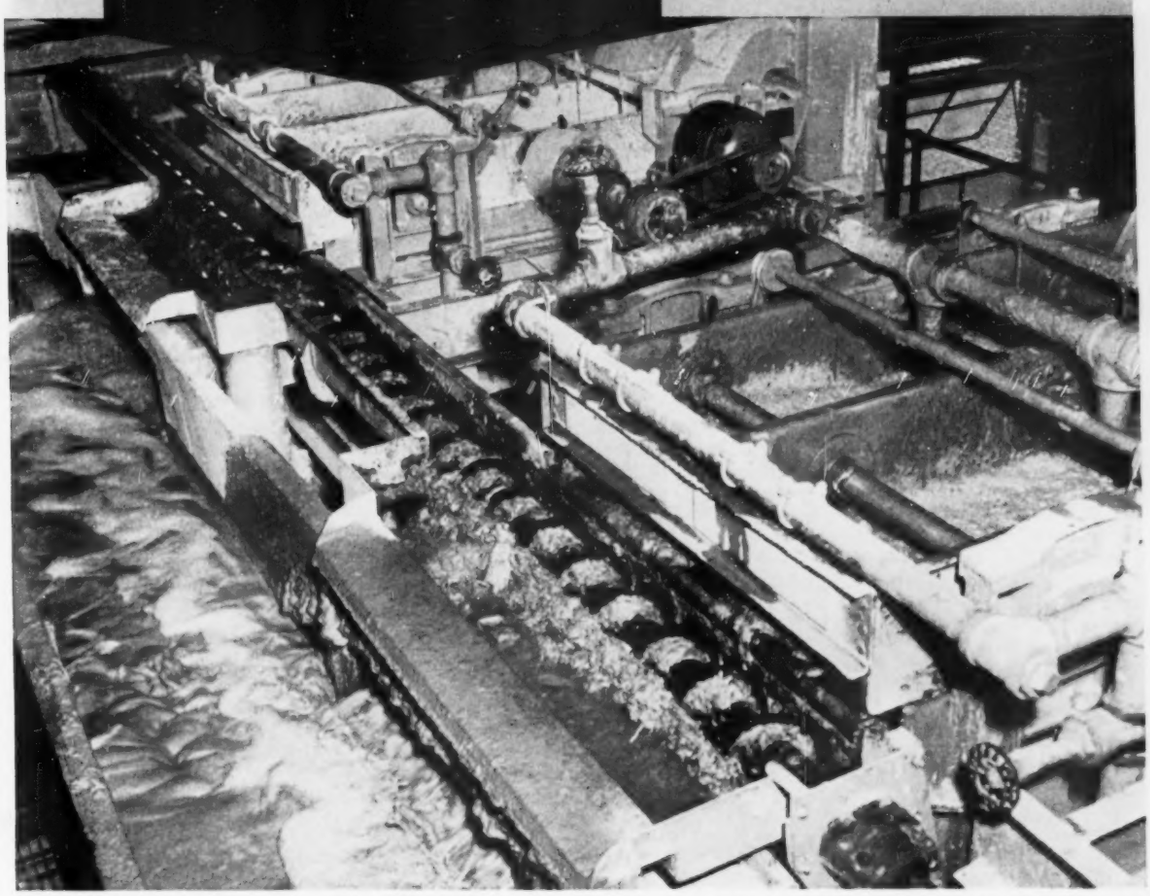
Bird Jonsson Screens deliver 80 to 100 tons of 1½% sulphite per Screen per day — 150 tons or more of 2½% groundwood and sulphate.

Bird Jonsson Screens are standard for knotting ahead of brown stock washers. They increase washing efficiency, maintain better vacuum and assure maximum recovery of black liquor.

Bird Jonsson Screens are equally effective on waste paper or deinked stocks, on straw stocks, and stock from refiners or defibrators.

Ask for recommendations and estimates.

BIRD MACHINE CO.
South Walpole, Mass.



These Bird Jonsson Screens are handling old paper stock, removing all unwanted matter — wet strength paper, cellophane, rubber bands, paper clips, etc. with almost no loss of good fibres

Hopper
PAPER COMPANY
TAYLORVILLE ILLINOIS

..... ITS EXPANSION

NEW FOURDRINIER PAPER MACHINE
OTHER MODERN EQUIPMENT ADDED

The waitress in the Frisina Hotel dining room told the roving PULP & PAPER editor, as she filled the coffee cup again:

"It's a good thing we had this paper mill in Taylorville with the mines extending their activities further and further away from town."

Located in the Abraham Lincoln country of Illinois, boasting some of the best farmlands in America, is the mill she spoke of—Hopper Paper Co.—a fine grades mill which has rounded out 30 years of steady growth. Papermakers have often scratched their heads in wonderment when their attention is called to the location of this mill in Central Illinois, far away from any of the fine paper grades manufacturing centers.

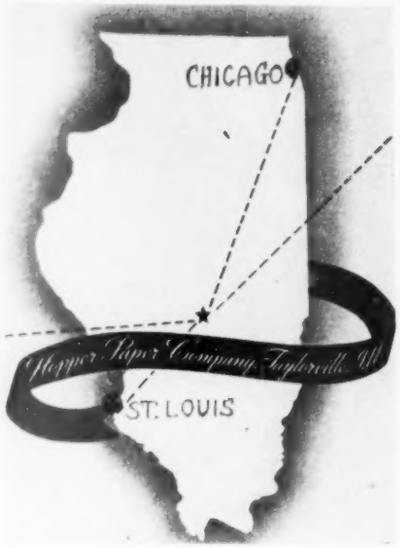
But back in 1922, the late Bertrand Hopper was having trouble getting paper for his converting plants. He had seen great paper centers thrive even though essential raw materials were no longer plentiful in their immediate area, so he was willing to look for his mill in unlikely places.

He chose Taylorville for several reasons. Here was the old dilapidated E-Z Bag Paper Co. mill building and machine which he could restore to a high grade producer. His company has been rebuilding the machine ever since, a 126 in. Fourdrinier, and now it has added another new Fourdrinier of 136 inches, which is one of several reasons for this story.

Below the mill in Taylorville is a subterranean water supply, two or maybe three miles long and a half mile wide. Water is only 37 ft. down and the lake is 45 ft. deep under the mill area, but pumps go 90 to 100 ft. to get proper screening. The elder Bert Hopper chose well—there has been a drop in the water in these 30 years only once, and then it recovered quickly. The water is ideally constant in temperature and exceptionally free of slime.

Also, Taylorville is a coal mining center. Ever since it was founded in 1839 by the Lincoln era pioneers it has been a coal center. And even though the Frisina Hotel waitress noted that mines were shutting down, and she was happy that her uncle had a steady job at the mill, alternating every week on night and day shifts, she did not take into account the fact that other mines always were opening in the general area. They were keeping the Hopper mill running. For the coal mines were virtually next door neighbors and essential fuel supply was abundant and economical to receive.

Taylorville is just 220 miles southwest of Chicago, one of the great paper markets of the world. Also, close to many other Midwest markets . . . Kansas City,



St. Louis, Indianapolis, points East, all overnight deliveries. It lies at the bottom of an upside down triangle with Springfield and Decatur at the other points, each about 30 miles away. Decatur has railroads crossing it in every direction.

At this point, it should be stressed that Hopper is no longer just a Middle West Paper supplier. Headed since 1934 by Bertrand Hopper's son, Bertrand C. Hopper, it wasn't long before the company tried its hand again at restoring a run-down junky mill. In 1942, it purchased for a song the old Reading, Pa., paper mill, overnight to the New York, Philadelphia and other eastern markets.

More About Taylorville

Taylorville, a town of 9,000, county seat of Christian County, was named for a Lincoln era promotor who laid it out as a development. Besides paper and coal, it is a center for corn and is the biggest soybean producing county in Illinois. But a soy bean plant is not a big employer, and the hotel waitress was right in giving credit to the paper mill for being a bulwark of prosperity for Taylorville. It is a pleasant town of shady streets and old style homes, with a well-kept golf course and, coincidentally a scion of the Frisina Hotel and theater chain family has made that name known in competitive amateur golf.

The latest additions and improvements at Taylorville have brought this mill up to a daily capacity of 100 tons, from 25 tons in the early '30's. Products are offset printing, fine writing, papeterie, Index bristols, box covers and specialties. The raw material is purchased pulp, mostly bleached sulphite woodpulp, along with bleached kraft and rags.

The $1,750,000 project under the expert direction of John L. Mullin, vice president and general manager, saw the new machine started up last summer, but new additions for raw stock receiving and storing and truck loading docks for paper and other improvements carried on several months more before completion.

The Reading and Taylorville mills now make 35,000 tons a year. Employment at Taylorville is about 245; at Reading, it's 100. Normal production is six days a week.

The manager at Reading is W. Eugene Quillen, who came from Paterson Parchment in 1946. Though purchased in 1942, this mill did not get into operation until 1946 due to the war and required extensive rebuilding. Though known as a fine paper mill since 1866, it had been shut down most of the time since 1932.

Fast Color Changes

Many papermakers won't believe that you can make a change from colors to white in from three to five minutes until they have seen "Nip" Mullin do it. With a combination of white water and fresh water hook-up, the color changes are easily made in under 10 minutes without shutting down for washing up. From deep green to white takes the full 10 minutes usually, other changes less time. They have made 23 changes in a 100 ton run at Taylorville without a shutdown.

One of the features of the new expansion at Taylorville is the closed water system. All water is returned from wire, suction boxes and couch roll to the save-all and chest, all shower water is returned to the chest, thereby making a complete cycle. Surplus of white water is used to fill the pulpers. Water and chemicals are saved by doing this and fiber is saved in the saveall. Unless there is some trouble, only fresh water used on the machine is on foam sprays in the headbox. There is none used in showers, which is uncommon.

Thanks to Jim Mullin

A number of the photographs shown with this special article were taken by Jim Mullin, son of John L. Mullin, vice president and general manager of Hopper Paper Co. Some were taken especially for PULP & PAPER and we want to express our appreciation and give due credit. A number of pictures were taken by a traveling PULP & Paper editor, also, who visited the mill to especially prepare this feature.

JOHN L. (NIP) MULLIN, Vice President and General Manager of Hopper Paper Co., Taylorville, Ill., was born in Pennsylvania and got his start there, before moving to Taylorville in 1934 as Superintendent. He directed expansion program at the mill. DAN MIZER, Comptroller, also had a leading role in the expansion program.

BERT HOPPER (left), President of Hopper Paper Co., and GEORGE A. LEAR (right), President of Moore & White Co., are equally pleased with operation of new machine at Hopper Mill in Taylorville, Ill.

The L-shaped addition at the mill is a windowless concrete and steel structure of 67,000 sq. ft. It has a 4-ply built-up roof and rubbed surface exterior walls with aluminum trim. Purchased pulp is taken by lift trucks from rail cars up a concrete ramp to storage or direct to the Dilts 14-ft. Hydrapulper or the two new Apmew Aquabrushers, each 15 ft. in diameter and 8 ft. deep, each driven by a new Louis Allis induction motor with V-type belt and sheaves. All purchased pulp goes to these pulpers where titanium, clay, alum, resin, starch or dyes may be added. The new ceramic tile lined pulpers with whirling blades at bottom are handling 4000 to 4500 lbs. of stock per hour.

From the new stock processes, the next step is to two new No. 2 Emerson jordans, one with steel filling, the other bronze, each driven by Elliott 350 H.P. 80% p.f. synchronous 2,300 volt motors. Two new 3A Model Bird Machine Co. screens follow.

Description of Machine

Valley Iron Works supplied a stainless steel flowbox and inlet and the saveall is by Bird Machine.

The paper machine, built by Moore & White Co., has 136 in. by 70 ft. wire on a non-removable type Fourdrinier and trims 124 inches. The length of the new machine from Headbox to reel is 194 ft. Micarta springs support shake rails and breast roll; and saveall pans and all parts carrying stock are stainless steel. The machine is equipped with anti-friction bearings. Air-operated clutches are all on tending side for easy control.

A Downingtown suction couch roll is 28 in. diameter and the Moore & White press sections consist of two main presses, a smooth press and a size press after the 24th dryer. There are thirty 48-in. dryers in all with four 36 in. felt dryers.

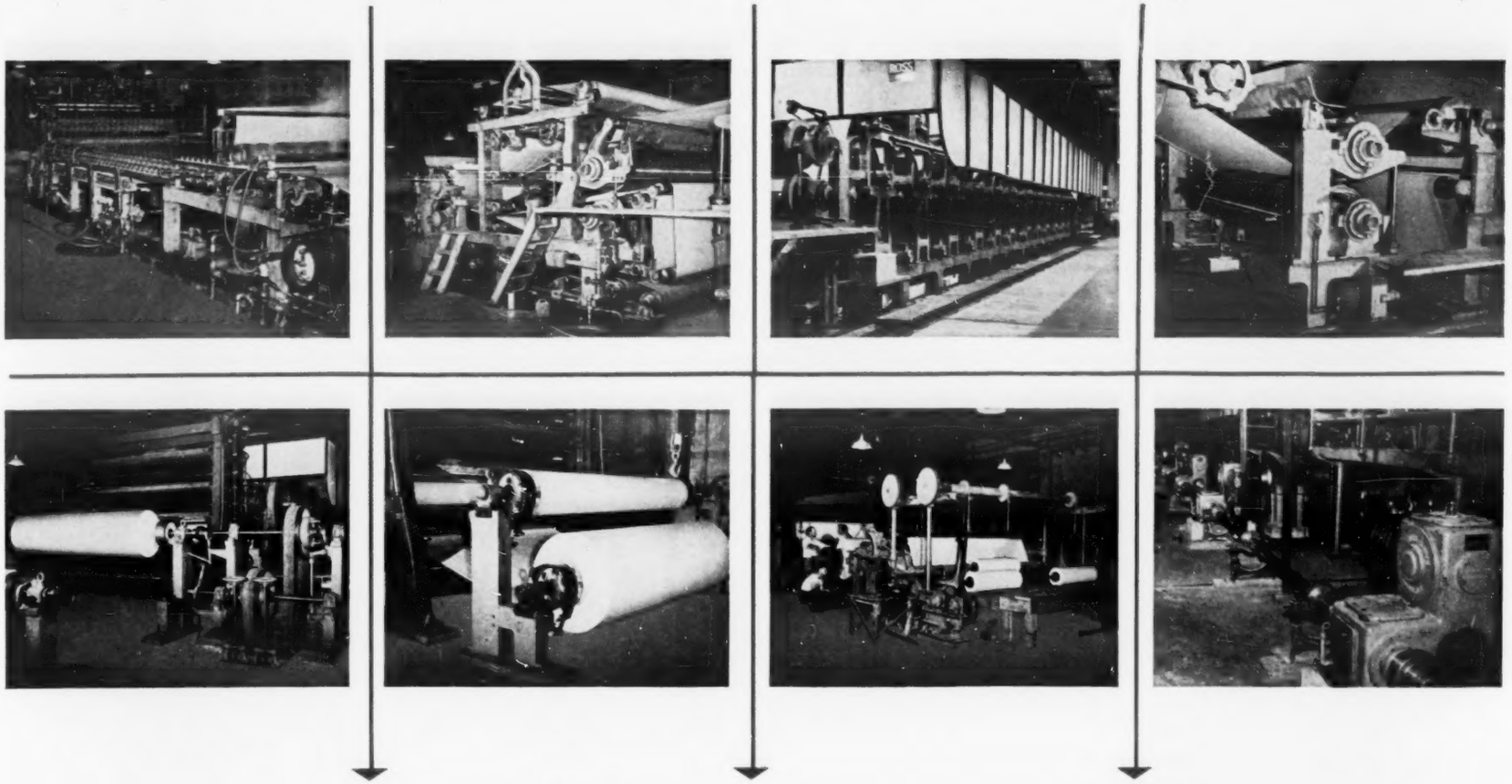
An 8-roll Farrel-Birmingham calender with babbitt-lined water-cooled bearings is described as adequately handling all machine finishes. Moore & White built the two-drum upright type reel with removable spools with horizontal and lateral adjustment for reversing sheet, and also supplied a 4-drum winder and high speed slitter, which winds 36 in. diameter rolls.

The rolls and moving parts of the paper machine are balanced for a speed range from 100 to 600 f.p.m.

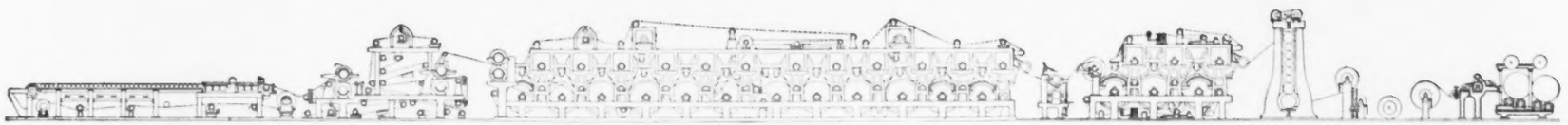
One of the unusual features in machine equipment are the Moore & White Syco drives which drive the seven major sections—couch, first press, second press,

LEFT—GENERAL VIEW of new MOORE & WHITE Fourdrinier Paper Machine at Taylorville from Fourdrinier section toward d/y end. ROSS ENGINEERING Hood and Air System provided.

RIGHT—MOORE & WHITE made Reel and Rewinder-Slitter, also, for the new machine at Hopper Mill. Calender stack of 8 rolls by FARREL-BIRMINGHAM. (Both views by Jas. Mullin).

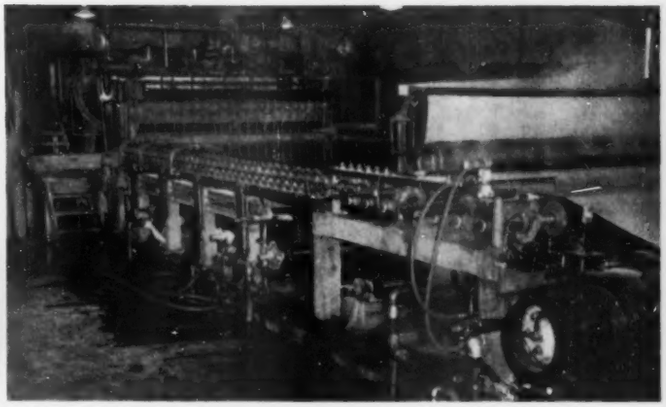


Latest Moore & White Fourdrinier machine with 136" wire operating on specialty grades at Hopper Paper Co., Taylorville, Ill. Above views show various machine sections and Moore & White Syco-type machine drive.



The MOORE & WHITE Company 15TH STREET AND LEHIGH AVENUE PHILADELPHIA 32 PA. • CUSTOM-BUILT MACHINES FOR PAPER MAKERS

LEFT—EXTERIOR OF NEW WINDOW-LESS PAPER MILL Addition at Hopper Paper Co., Taylorville, Illinois. It is 337 ft. long, and is built of ornamental reinforced concrete.



RIGHT—VALLEY IRON WORKS Stainless Steel Headbox and Inlet in background of new paper machine at Hopper Mill. Fourdrinier section carries wire 136 in. by 70 ft.

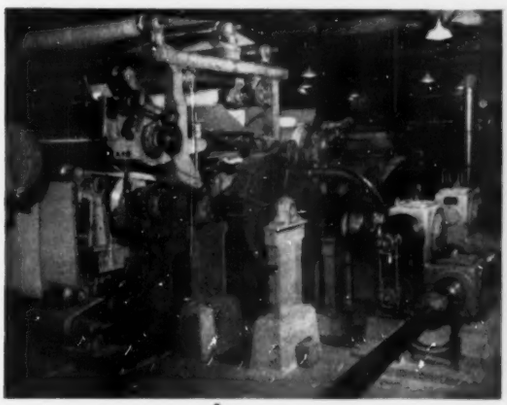
dryer sections, size press and calender. These Syco drives are variable speed combinations of Morse Chain and V-belting drives. Variable pitch pulleys can increase or decrease speed of rolls. Adjustments synchronize all seven sections of machine, thus eliminating conventional long belts and cone pulleys.

It is a compact, mechanical type of drive activated by a 275 h.p. 4000 r.p.m. Westinghouse non-condensing turbine at steam pressure of 185 lbs. Airflex clutches operate from the front side of the machine, and all the Fast's couplings (Koppers) are either half-flex or full-flex. Variable pitch sheaves are by Allis-Chalmers with steel-cable cord belting. An Ingersoll-Rand Type 30 air compressor serves Fawick Airflex clutches.

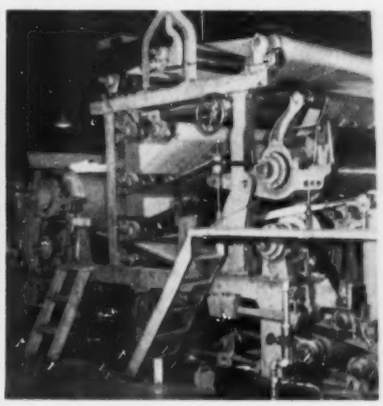
The safety factor and roominess in the back of machine, with shaft low to floor and moving machinery adequately housed, are features of the Syco drives.

Standard link-leather belting, is used on two tension rods on the reel and also it is used elsewhere in the mill—on cutters, slip drives and a small calender, where winding slippage is required. Belting was supplied by Chas. A. Schieren Co.

Another outstanding feature of the new machine is the Reliance Electric & Engineering Co. V*S Drive applied to the M & W rewinder-slitter. A Reliance V*S control unit generator operating on the



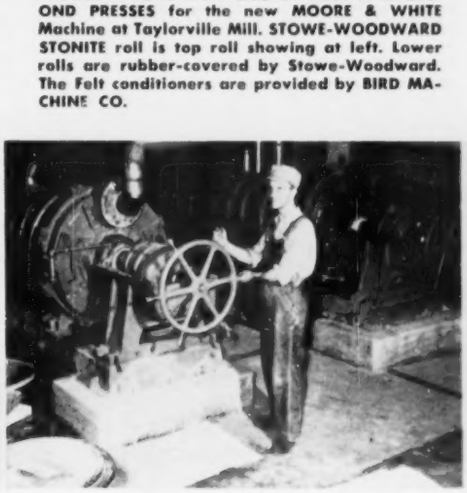
LEFT—BACK SIDE OF FIRST AND SECOND PRESSES of new machine at Hopper Paper Co., showing SYCO Drives with variable speed combination of chain and V-belting. Variable pitch sheaves are by ALLIS-CHALMERS, large gears are Morse Chain and couplings are Fast's type.



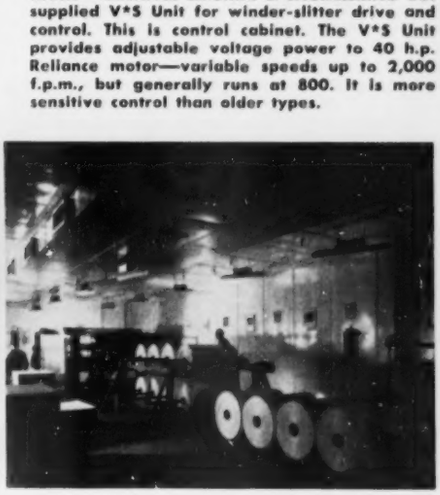
MIDDLE—This is front side of FIRST AND SECOND PRESSES for the new MOORE & WHITE Machine at Taylorville Mill. STOWE-WOODWARD STONITE roll is top roll showing at left. Lower rolls are rubber-covered by Stowe-Woodward. The Felt conditioners are provided by BIRD MACHINE CO.

RIGHT—RELIANCE ELECTRIC & ENGINEERING CO. supplied V*S Unit for winder-slitter drive and control. This is control cabinet. The V*S Unit provides adjustable voltage power to 40 h.p. Reliance motor—variable speeds up to 2,000 r.p.m., but generally runs at 800. It is more sensitive control than older types.

LEFT—ONE OF 2 APMEW AQUABRUSHERS, each 14 ft. in diameter, which prepare purchased wood pulp and mix desired chemicals, for new machine at Hopper Paper Co.



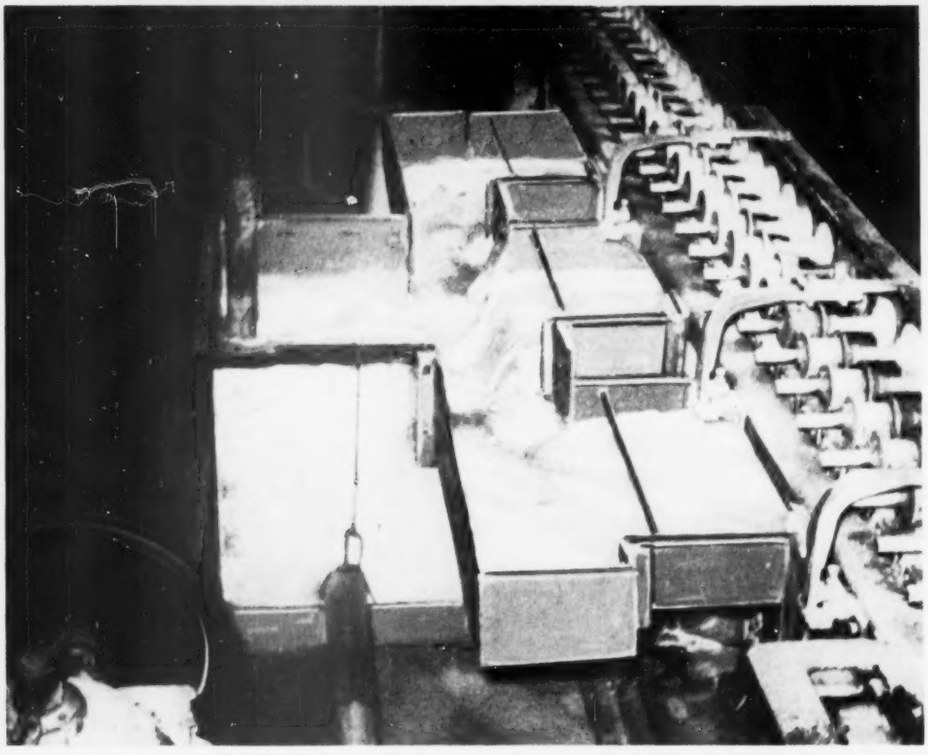
MIDDLE—TWO EMERSON NO. 2 JORDANS, one with steel filling and one with bronze, for new Hopper machine. They are each driven by ELLIOTT Motor of 350 H.P. 80% p.f.



RIGHT—AIR CONDITIONING ROOM at Hopper Mill keeps printing papers in condition to "work" smoothly when they reach presses. Printing samples are in small frames on wall.

BROWN-HUTCHINSON PREFABRICATED STAINLESS

AT HOPPER PAPER CO.



THIS IS AN EXAMPLE of stainless steel fabrication done for HOPPER PAPER CO. by BROWN-HUTCHINSON IRON WORKS. This open-type flow box and trays alongside Fourdrinier of the new 136 inch paper machine for return of drainage. These installations and other stuff boxes for the new addition at Hopper Paper Co. were fabricated with Type 304 stainless steel.

★ B-H invites you to request its assistance for all your requirements for prefabricated alloy work. Ray Shillum, B-H's Metallurgist in charge of Engineering and Sales will be glad to cooperate from our Detroit headquarters or on your plant grounds, as desired.

BROWN-HUTCHINSON Will Engineer and Fabricate

- Alloy Pipe and Fittings
- Headboxes
- Steel Troughing
- Winder Shafts
- Saveall Trays
- Pressure Vessels
- Tanks (steel, alloy, lead or rubber-lined)

and

MISCELLANEOUS FABRICATION OF ALL KINDS ● MONEL-STAINLESS—OTHER ALLOYS

B-H

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IRON WORKS, INC.
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CLARENCE G. KRAMER (left), is Vice Pres. and Production Manager of Hopper Paper Co., and L. S. (LAURIE) WRIGHT (right) is Assistant to the President. Mr. Kramer has been with the company since its founding; Mr. Wright returned a year ago to his native Illinois, after many years in the industry in New England.

mill AC power supplies adjustable voltage control to the 40 hp Reliance gearmotor driving the winder. It provides a wide range of operating speeds up to 2,000 f.p.m. maximum but is generally run at about 800 f.p.m.

It is described as a more sensitive speed control than older types in bringing the winder up to speed and its wide speed range is a factor noted by operators. It controls down to the exact number of feet speed desired which old type controls were unable to do. This Reliance V*S Drive was praised by the operators at Taylorville for its compactness and easy faultless operation.

Other Machine Auxiliaries

Going back over the machine to point out interesting features, in auxiliaries, etc., it is noted that Brown-Hutchinson Iron Works of Detroit fabricated stainless steel welded stuff box above the machine inlet, another ahead of machine fan pump, and a flow box and trays for return of drainage from wire and suction boxes to fan pump, which are alongside the Fourdrinier section. All the head boxes and trays are made of Type 304 stainless steel. These boxes and trays and the Valley Iron Works collector box are open, and therefore, easy to clean. A Poirier weight governor is on the stuff box which is above the machine inlet.

A Bagley & Sewall shake has Allis-Chalmers induction motor and a Link-Belt P.I.V. speed unit.

A Peerless fan pump is driven by 25 h.p. Louis Allis Motor. Other pumps are from Peerless and DeLaval Steam Turbine Co. Vacuum pumps are by Nash Engineering, one with Elliott motor and the other Westinghouse.

All roll covering was done by Stowe-Woodward Co. Some are Stonite covered and others are standard rubber covering. Doctors were provided for dry and wet end machine rolls by Lodding Engineering Corp.

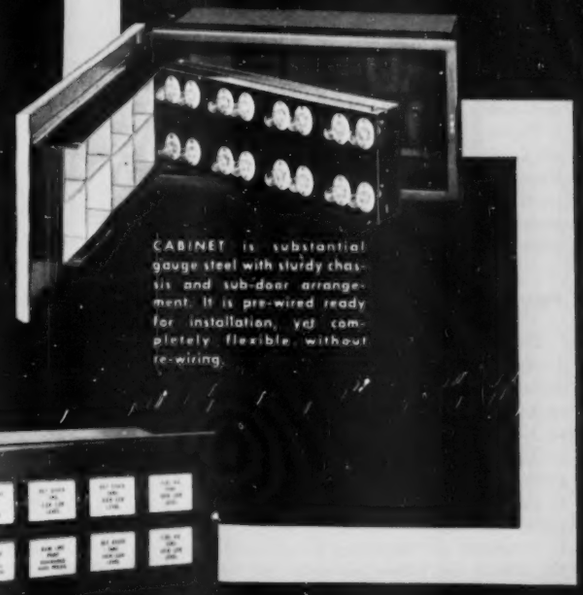
Press section felts are equipped with two new type Bird Victory felt conditioners with jordan-type vacuum boxes and high speed gear boxes designed to treat about 450 sq. ft. of felt per minute. An unusual feature here is having four

PANALARM "50" ANNUNCIATOR SYSTEMS

NEW functional flexibility with NEW "instrument-type" construction

PANALARM "50" PLUG-IN UNIT . . . hermetically sealed and most versatile ever developed . . . simply plugs into chassis to expand system . . . no wiring . . . no other connections. Corrosion-proof and suitable for Class I, Div. 2 locations.

Built-in flexibility of PANALARM "50" allows simple change-over to any operating sequence as required by present or future conditions. And, at the same time PANALARM "50" introduces a new instrument-type annunciator construction . . . adding to the long-term dependability of the entire system.



CABINET is substantial gauge steel with sturdy chassis and sub-door arrangement. It is pre-wired ready for installation, yet completely flexible without re-wiring.

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boxes on each conditioner. There are five water sprays instead of one in each box and covers are so designed as to give a felt kneading action.

Ventilating and Drying

A complete air exhaust and replenishment system was furnished by the J. O. Ross Engineering Corp. The machine hood is of the suspended type built of smooth Transite and steel prefabricated panels. The exhaust stack and exhaust fan penthouses are similar.

Two large penthouses on the roof house heating coils and supply fans for air make-up and ventilating. The air systems are sized to provide affective ventilation over the ceiling area to prevent drip in cold weather and also provide substantial air balance between air from the hood and air replaced through the ventilating system. A complete system automatically controls temperature of air delivered to the mill as a function of outside conditions thus maintaining comfortable conditions in any change of weather.

The machine is fitted with a Ross-Grewin system delivering high pressure heated air through a system of copper piping through vapor pockets of the machine; increasing drying capacity and providing uniformity of drying. A Ross calender cooling system delivers cool filtered air from the basement through a system of piping with nozzles for directing high velocity jets of cool air against the calender rolls as required. This aids in winding uniformly tight and solid rolls.

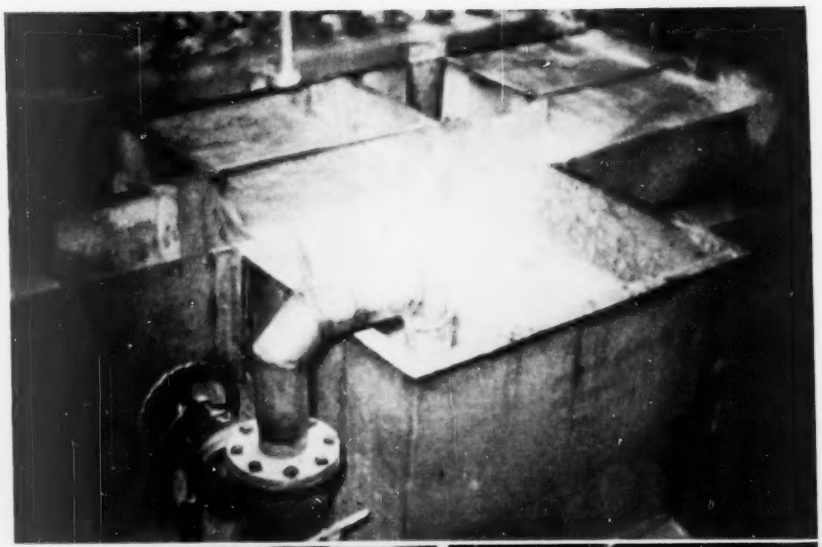
To supply water for the new additions at Taylorville, four new 300 g.p.m. Cook Deepwell pumps were installed in the mill yard. Each is in a separate little pumphouse and driven by a 20 h.p. E. S. Electrical motor.

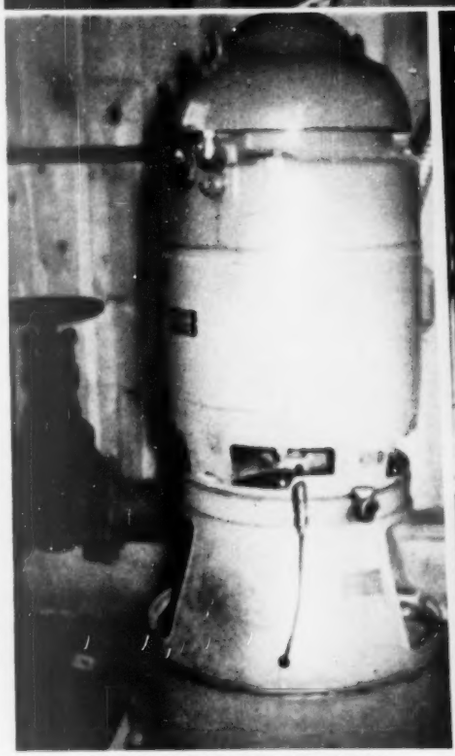
Power Plant

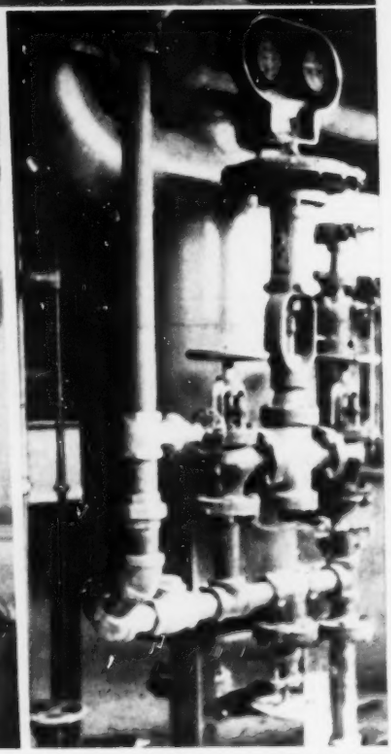
The power plant at the Hopper mill has 1—450 h.p. and 2—400 h.p. water-walled Babcock & Wilcox boilers with chain grate stokers burning washed coal screenings of 12,000 BTU coal. Their steam pressure is 190 lbs. at 500 degrees F. The mill is generating and using enough power now to supply exhaust steam sufficient to dry paper on both machines. It would not pay to generate all required power and waste the steam. So, other power is purchased at 2300 volts, about half used at this voltage and the rest stepped down to 240 volts. The whole mill lighting system is three phase, 4 wire, giving a good balance in lighting. Largest electrical cable made—2,000,000 circular mil—are main feeder lines for the mill. Main switch gear feeds to four control panels and motors develop more than 1500 h.p., ranging from one-half to 350 h.p. More than 30 wires lead from boiler room to the four deep wells and at the control point the operator can tell exactly what is happening in each well. The wells are automatically operated to control capacity required.

Men Behind the Machines

As in other industries, men as well as machines are important—often more important than the machines.







TOP VIEW—BROWN-HUTCHINSON IRON WORKS of Detroit fabricated these Type 304 stainless steel flow box and trays for recovery of drainage from Fourdrinier section of Hopper Paper Co.'s new machine. Open type permits easy cleaning.

BELOW LEFT—COOK Deepwell Electric Pump—one of four new pumps which provide high quality water supply for new mill from underground lake. BELOW RIGHT—MIDWEST FULTON Steam Control and Condenser for drainage system on new machine.

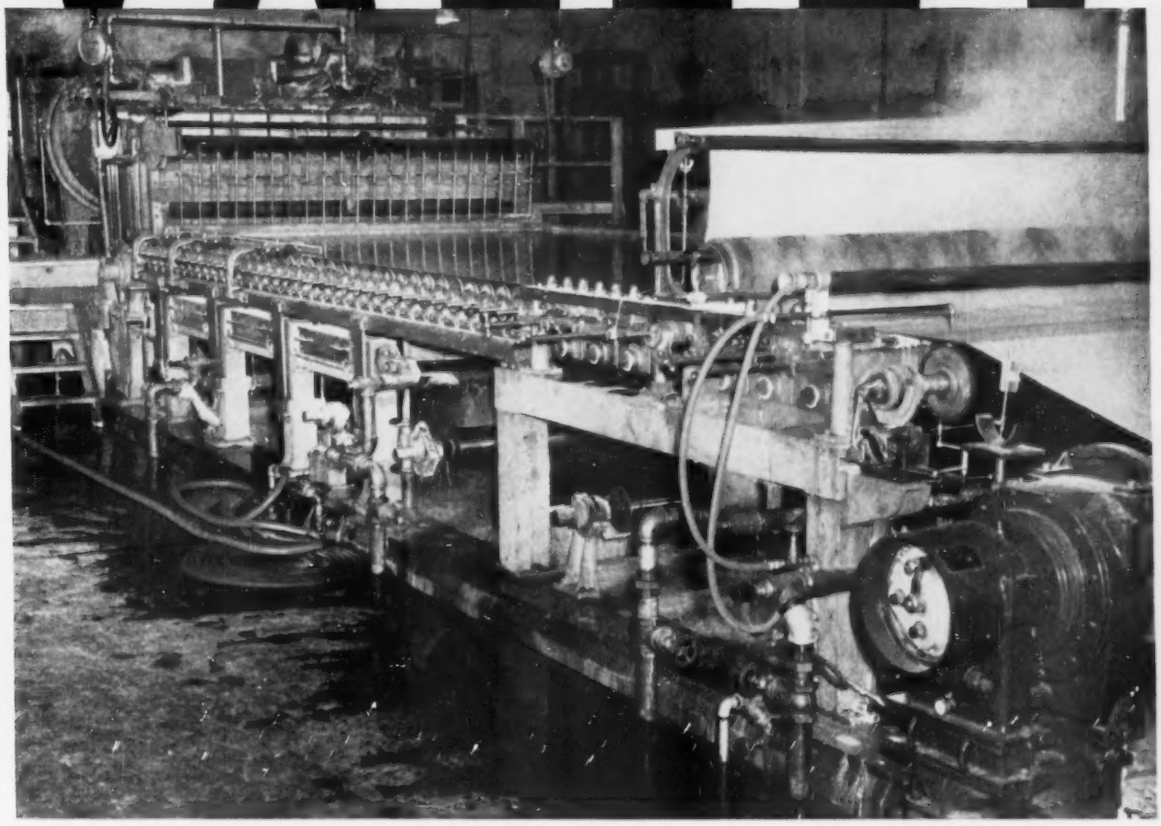
Bert Hopper, whom we left several columns back, taking over the business leadership at the age of 24, has directed the company to new heights of sales records and financial stability. Until recently he flew his own airplane to cut down the time in "commuting" to paper markets. Though he stays on the ground, or else flies with commercial pilots now that he is approaching his mid-40's, he hasn't slowed down any. Bert refuses to take credit for the success of his company, saying that the firm foundation laid down by his father combined with the good fortune of being surrounded by capable associates, should make any business prosper.

"Nip" Mullin, also a director of the company, apprenticed in a bake shop for 3½ years before he got a job in the Buck Run, Pa., Paper Mill and decided that was the life for him. This was Nassau Mills Corp., and his introduction to the business here led to many other mill experiences, including Jessup & Moore, where he was for 5 years, and Dill & Collins in Philadelphia, where he was assistant superintendent before coming to Taylorville in 1934 as superintendent, just six weeks before the elder Hopper died. It looks like he's here to stay for awhile!

Clarence G. Kramer is vice president and production manager. Born in Breckenridge, near Springfield, Ill., he is one of

On Hopper Paper Company's New Machine . . . It's Inlet and Headbox by

VALLEY



For producing Hopper's distinguished offset and specialty papers, it's a VALLEY Inlet on every machine.

We are mighty proud that the Hopper Paper Company has once more specified . . .

INLET AND HEADBOX BY VALLEY

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Iron Works Company
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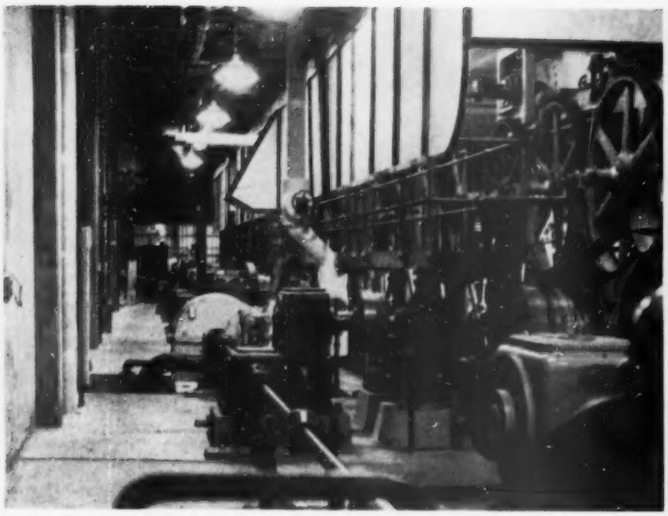
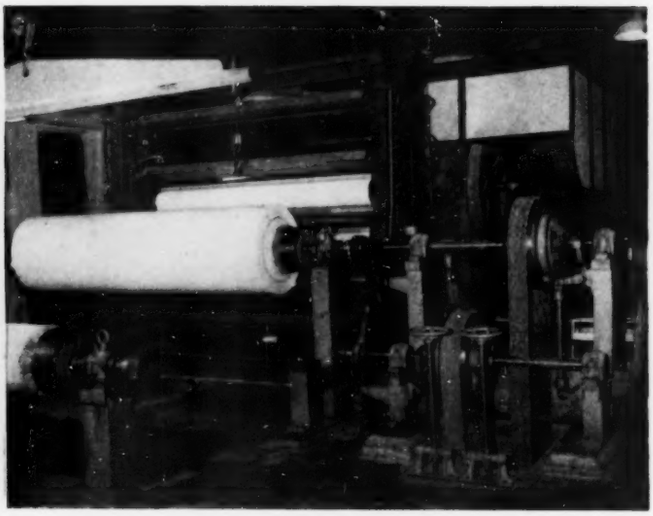


LEFT—ALMOST FULL-LENGTH VIEW of the SYCO Drive for MOORE & WHITE Paper Machine at Hopper Mill. Note low line shaft and 250 H.P. Steam turbine midway down the shaft.



RIGHT—CLOSEUP OF MOORE & WHITE Reel at Hopper Paper Mill showing link-leather belting made by CHAS. H. SCHIEREN CO. Calender is by FARREL-BIRMINGHAM.

Hopper's oldest employes, joining at its start-up in 1922. He became a v.p. in 1947.

Although Dan Mizer, comptroller, is a native Ohioan he came to Hopper in 1948 from St. Louis where during World War II he was with the United States Cartridge Co. Division of Olin Industries, Inc., who operated the St. Louis Ordnance Plant. Dan Mizer was of great assistance in the expansion program. Statistical studies on sales and earnings records and plant and manufacturing data with comprehensive analysis were developed by Mr. Mizer to procure the required financing assistance and to qualify for certificates of necessity. The additional manufacturing capacity entailed expansion of cost analysis and accounting procedures, also developed by him.

A leading assistant in the expansion was C. Everett Shaw, master mechanic. He, too, is an old timer at the Hopper mill.

Mike Trojcak, chief engineer, worked closely with Mr. Mullin in the planning and carrying out of the electrical and power problems of the expansion project. Born in Streator, Ill., he was in electrical work in New York City, before returning to his native state and the Hopper mill 20 years ago. All told, he has been an electrical engineer for 40 years.

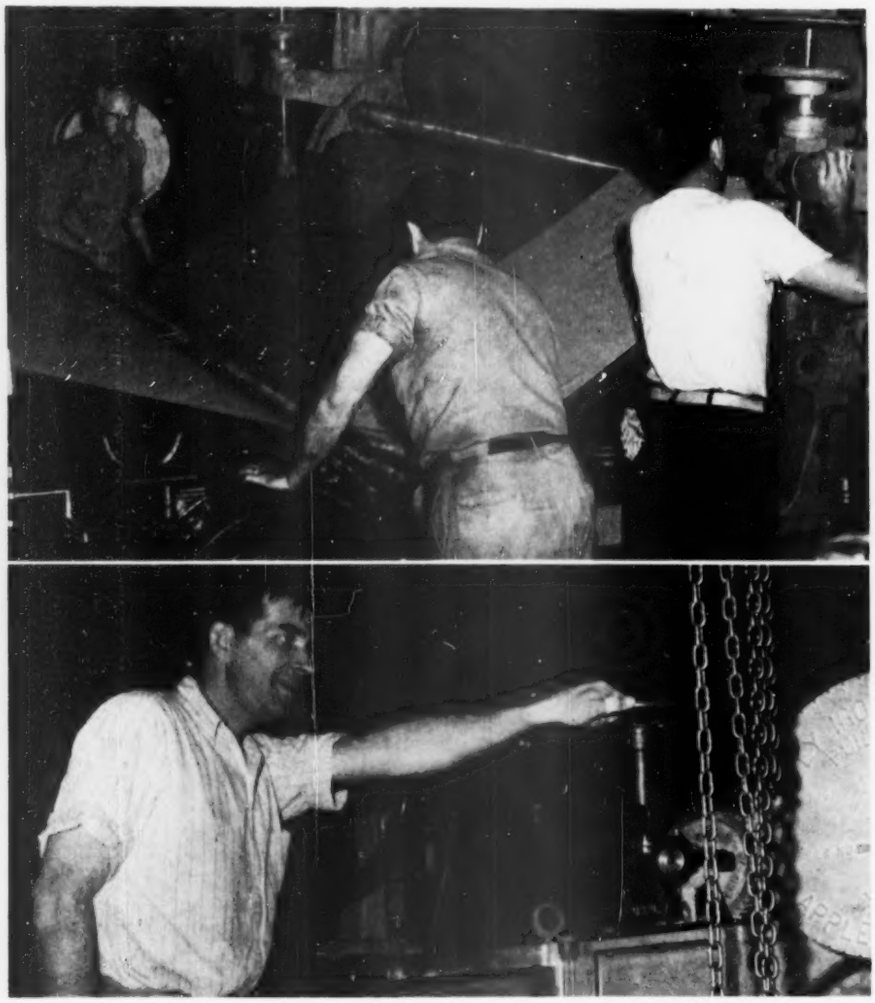
Dave Johnson, a native son of Neenah, Wis., where he was with the Lakeview mill before Kimberly-Clark acquired it, is machine room superintendent and was a great aid to Mr. Mullin in the expansion work. He came to Taylorville in 1930.

Others who contributed are H. E. Kennerly, chief chemist; Alpha Marshall, finishing foreman; Charles Asbury and Henry Peters, night superintendents.

Laurie Wright is assistant to the president, a position he has held since Jan. 1, 1952. The creation of this position is a result of the expansion. He and his wife both returned to their native state, Illinois. Mr. Wright, born in Chicago, graduated from the University of Illinois in 1925, went into textiles merchandising in the East, and then for 19 years was with Bird & Son, East Walpole, Mass. He left the position of sales manager of paper products to join Mr. Hopper.

Other administrative officials are H. W. Church, secretary, and L. J. Seifert, Jr., assistant treasurer.

The Hopper Paper Co. has long been recognized as one of the solidly built industries in this field and also one of the



BUSY SCENES AT START-UP of new machine at Hopper Paper Co. At top, VICE PRES. J. L. MULLIN, who is also a Director of the Company, is across machine, his sleeves rolled up, helping to get paper over couch roll. Below: CHARLES ASBURY, Night Supt. of Machines, is manipulating the control for raising or lowering lip of VALLEY IRON WORKS inlet.

among its many outstanding features is

BOWATER'S 51 UNIT ROSS Air System

NEWSPRINT MACHINES

Two Hoods and Exhaust for Paper Machines
Four Bottom Felt Units
Two Ross-Grewin Units
Two High Pressure Calender Cooling Units
Two Trim Conveying Units
Trim Conveying at Rewinder
Four Motor Ventilation Distributing Ducts

MACHINE ROOM

Four Wet End Exhaust Units
Two Air Makeup Units—Back Side of Machines
Four Heating and Ventilating Units—Machine Room
One Air Makeup Unit—Basement
Two Man Coolers—Machine Aisle
Four Units for Two Control Rooms—Back of Machines
One Control Room—Dry End of #1 Machine
One Control Room—Dry End of #2 Machine
Bridge Control Panel Ventilation

PULP DRYING

Ross Pulp Dryer
One Heating and Ventilating Unit—Pulp Drying Room

STOCK PREPARATION

Two Heating and Ventilating Units—Stock Preparation
Two Control Rooms—Stock Preparation

GRINDER ROOM

One Heating and Ventilating System—Grinder Room
Exhaust of Grinder Flume and Grinders

BROWN STOCK WASHING

One Washer Hood and Exhaust
One Control Room Unit for Two Rooms

BLEACH PLANT

One Heating and Ventilating Bleach Plant
One Exhaust from Washers and Towers
One Supply to Panels, Consoles, etc.
One Control Room Unit for Two Rooms

Probably the largest installation of air handling equipment ever ordered for a single mill will be this 51 unit ROSS Air System at Bowater's notable new mill at Calhoun, Tenn. The important assignment given to ROSS Systems for the operation of this outstanding Bowater project is one of which we are justly proud.

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most progressive. Its growth in 30 years, if any criterion of the future, indicates it will continue to stand for those attributes among the paper mills of the fine paper field.

Crown Z Paper School Reorganized at Camas

With expansion of the Crown Zellerbach Paper School at Camas, Wash., to include a graduate school, several changes in the administrative staff have been announced by the regents, R. O. Hunt, F. A. Drumb, and M. J. Otis, all C-Z officials.

Direction of both the graduate and undergraduate schools has been placed in the hands of a provost who will be A. G. Natwick, dean of the undergraduate school since its inception in 1933 and recently completed his period of service in Washington, D. C. as director of the NPA Pulp, Paper and Paperboard Division. W. C. Jacoby was serving as acting-provost until Mr. Natwick's return to his post.

Dr. W. M. Hearon has been named dean of the graduate school and will be primarily responsible for its development. He is a Ph.D. graduate of M.I.T., 1940, and was with Eastman Kodak, served as a major with Army Engineers in the war, and later at M.I.T. as assistant professor, in 1947 joining Crown Z's Central Research Department as assistant director of research.

F. W. Flynn will serve as dean of the undergraduate school and Clarence A. Enghouse as associate dean of the undergraduate school. Mrs. Leona Blair has been appointed registrar and Joel L. Edwards as administrative assistant.

The graduate school's enrollment was increased from 10 to 13 for the second quarter. The course is "Fluid Flow" given by Prof. Octave Levenspiel, Oregon State College. Next year courses are planned on wood chemistry, the theory of pulping and bleaching, and on pulp and paper properties.

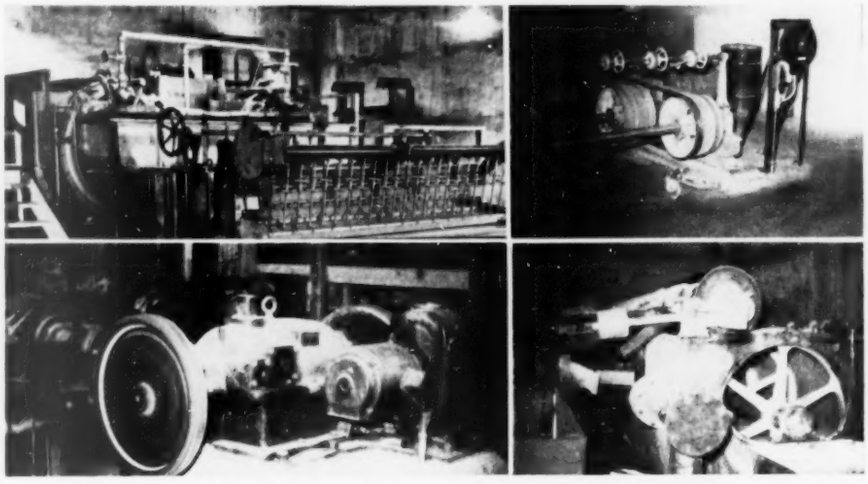
Coast TAPPI Holds Gadgets Program

Pacific Coast TAPPI section recently was treated to an "inside story" of personal experiences in wartime experiments and research with naval bombs and explosives at east coast testing areas by Dr. P. C. Cross, executive officer of the department of chemistry and chem. engineering, University of Washington. He previously had taught, studied and did infra red absorption work at Brown University, Stanford, Calif. Tech., and U. of Wisconsin.

He was dinner speaker at the annual Seattle meeting, attended by about 160. Earlier in the day, on the campus, seven papers were given by younger technical men in the mills on routine analytical methods.

Svarre Hazelquist, chairman of the Coast section and technical director at Longview for Weyerhaeuser, presided. Dr. E. Gray King, research director, Puget Sound Pulp & Timber, arranged and directed the "gadgets" program.

A FEW OF THE KEY MEN OF HOPPER PAPER CO. Organization include (left to right): DAVE JOHNSON, native of Neenah, Wis., who is Machine Room Supt.; MIKE TROJAK, Chief Engineer, who worked on electrical and steam requirements for expansion, has been electrical engineer for 40 years; C. EVERETT SHAW, a native of Taylorville, who is Master Mechanic, and ALPHA MARSHALL, Foreman of Finishing Room.



TOP LEFT—Closeup of BIRD SCREENS and VALLEY IRON WORKS stainless steel headbox and inlet on new machine at Hopper Paper Co.

LOWER LEFT—DANDY ROLL drive and Shake for new Hopper Paper Co. machine. Bagley & Sewall shake was provided with Allis Chalmers induction motor drive.

UPPER RIGHT—RELIANCE ELECTRIC & ENGINEERING CO. supplied this V*S drive equipment providing adjustable voltage to 40 H.P. motor for Moore & White Rewinder-Slitter for speeds to 2,000 fpm.

LOWER RIGHT—View of BIRD MACHINE CO. SAVEALL which is one of new installation serving the new Moore & White machine at Hopper Mill in Taylorville.

Kalamazoo Meeting Hears Chicago Banker

A. Newell Rumpf, vice president of Harris Trust & Savings Bank, Chicago, told the annual winter joint dinner meeting of Michigan Superintendents and Kalamazoo Valley TAPPI that he forsees a renewal of the basic strong demand for paper.

Liquidation of excess inventories has brought about the situation, he told his audience in Kalamazoo. He said the earnings record for paper industries will "stand up with all industry earnings in depression and in prosperity."

Max Bardeen, president of Lee Paper Co., was toastmaster and A. T. Lucy of Sutherland Paper, presided. Gordon K. Singletary, national president of the Superintendents, from Brunswick, Ga., praised the quality of superintendents' gatherings he has attended in several parts of the country.

Chas. R. McMillen Dies

Charles R. McMillen, 73, Consultant to Union Bag and Paper Corporation and former president of that concern, died Feb. 2, at Orange, N.J. He also was former executive vice president and director of the St. Regis Paper Co. and was with Camp Mfg. Co.

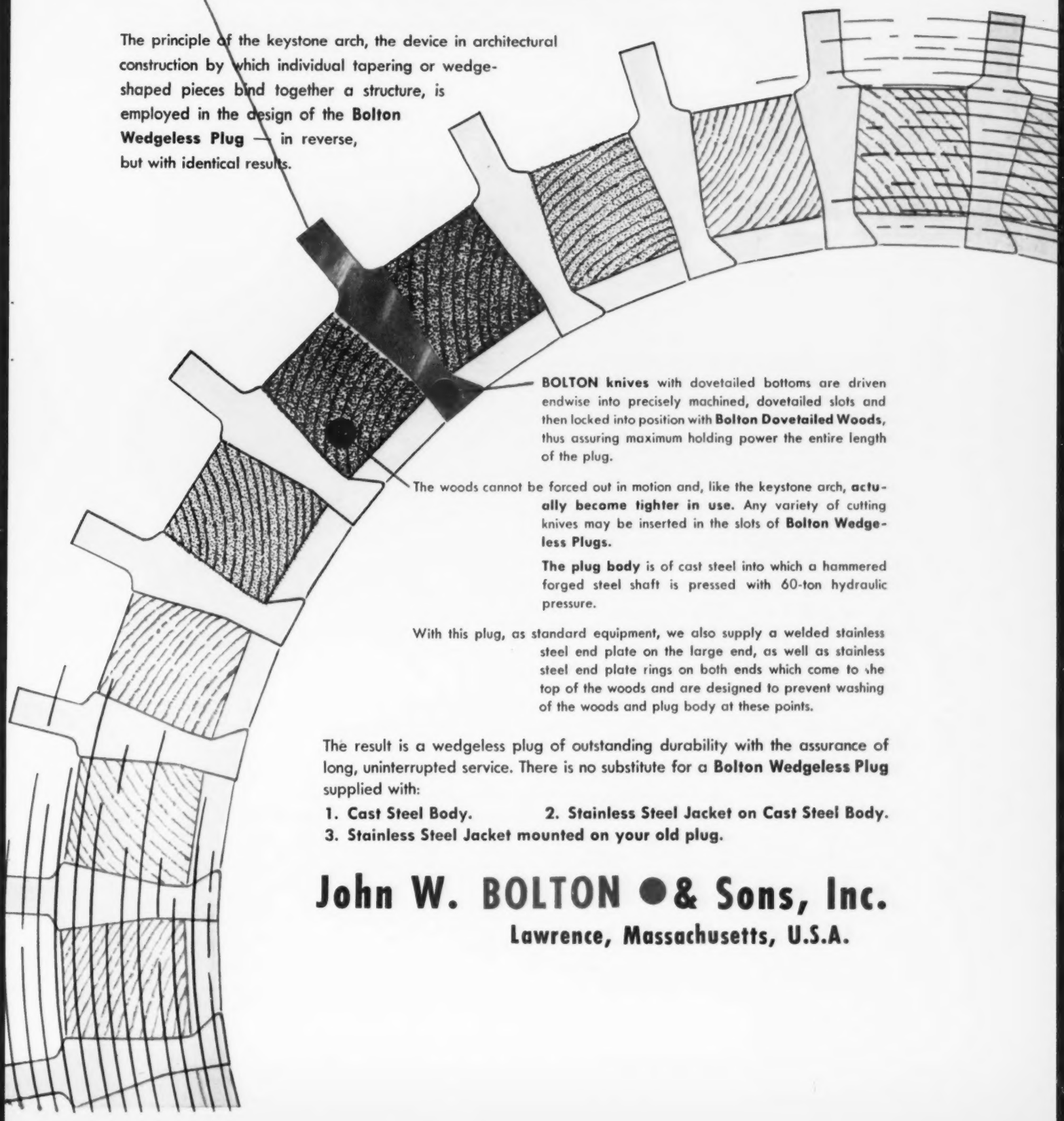
Harrison, B.C., Meeting Planned by Canadians

Pacific Coast Branch, Canadian Technical Section, has scheduled its Spring Meeting at Harrison Hot Springs, B.C., Mar. 26, 27 and 28.

The second annual Powell River award for the best paper submitted by younger members, and the winning paper will be one of eight technical papers given at the meeting, said Louis W. Pumphrey, Westminster Paper Co., chairman.

Knives are everlastingly locked in BOLTON Wedgeless Plugs

The principle of the keystone arch, the device in architectural construction by which individual tapering or wedge-shaped pieces bind together a structure, is employed in the design of the **Bolton Wedgeless Plug** — in reverse, but with identical results.



BOLTON knives with dovetailed bottoms are driven endwise into precisely machined, dovetailed slots and then locked into position with **Bolton Dovetailed Woods**, thus assuring maximum holding power the entire length of the plug.

The woods cannot be forced out in motion and, like the keystone arch, **actually become tighter in use.** Any variety of cutting knives may be inserted in the slots of **Bolton Wedgeless Plugs.**

The plug body is of cast steel into which a hammered forged steel shaft is pressed with 60-ton hydraulic pressure.

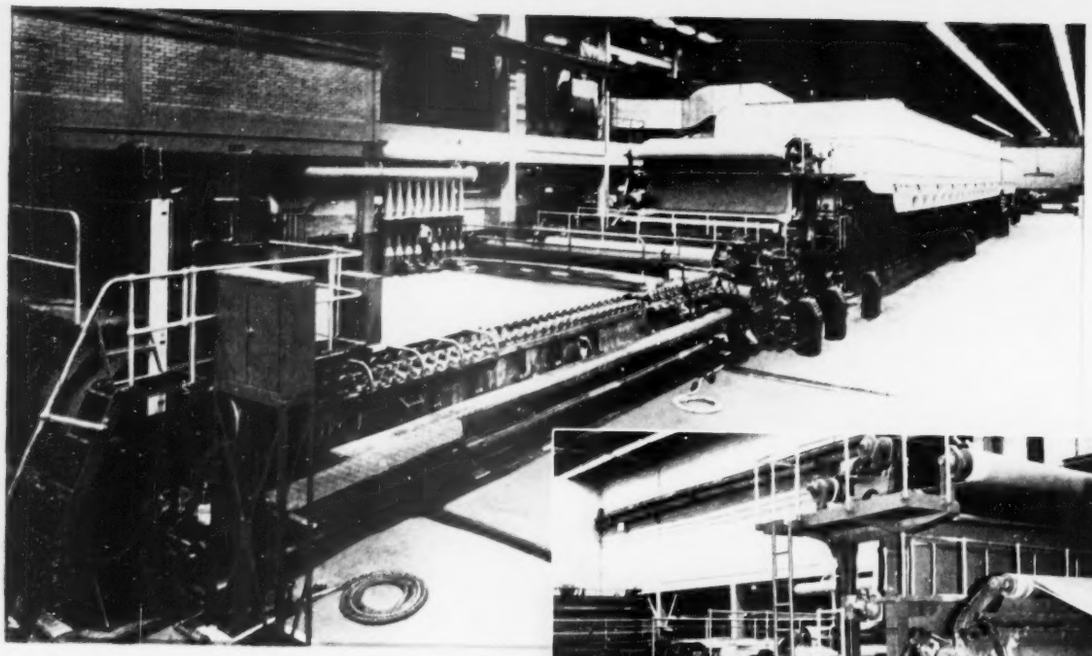
With this plug, as standard equipment, we also supply a welded stainless steel end plate on the large end, as well as stainless steel end plate rings on both ends which come to the top of the woods and are designed to prevent washing of the woods and plug body at these points.

The result is a wedgeless plug of outstanding durability with the assurance of long, uninterrupted service. There is no substitute for a **Bolton Wedgeless Plug** supplied with:

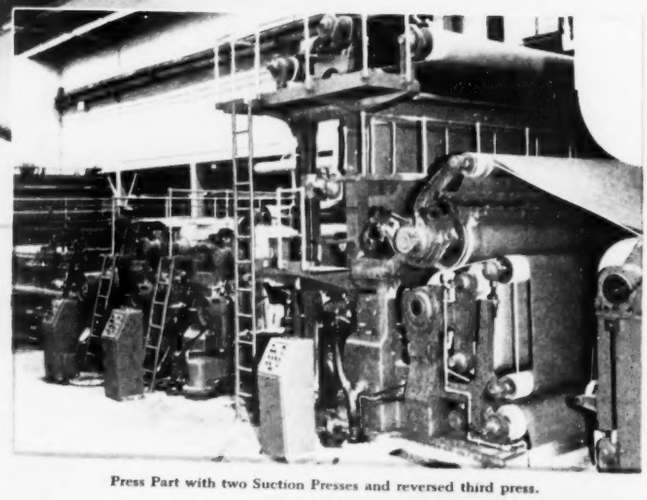
1. **Cast Steel Body.**
2. **Stainless Steel Jacket on Cast Steel Body.**
3. **Stainless Steel Jacket mounted on your old plug.**

John W. BOLTON & Sons, Inc.

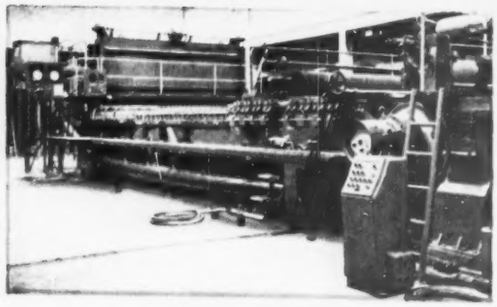
Lawrence, Massachusetts, U.S.A.



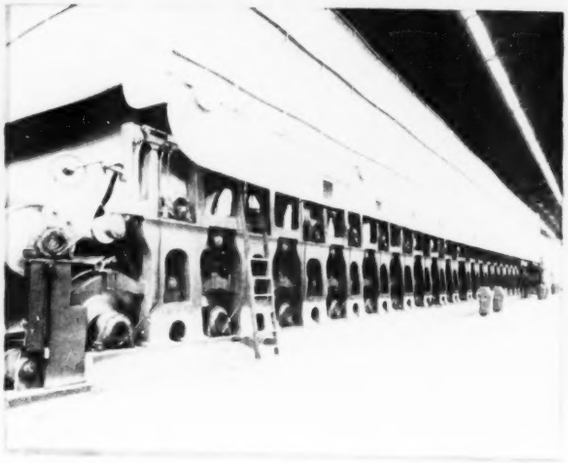
View from Wet End.



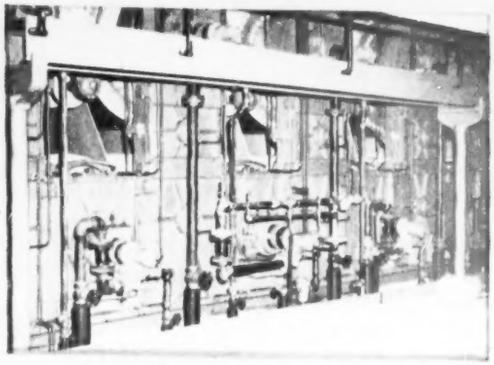
Press Part with two Suction Presses and reversed third press.



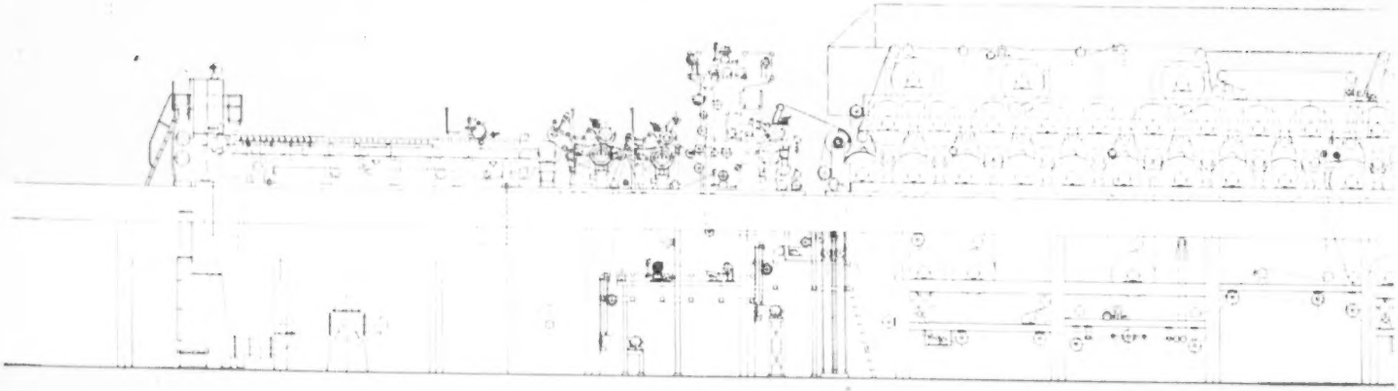
Fourdrinier Wet End.



Dry Part.



Back-side Dryer frames with enclosed gearing.



New Specialty Machine for

NEKOOSA-EDWARDS

A new Puseyjones Fourdrinier Machine for specialty papers began operation at Nekoosa-Edwards Paper Co., Nekoosa, Wisconsin, December 18, 1952.

By working closely with "Nepco" on the design and arrangement of the machine, Puseyjones developed a versatile performer that can be used on many different grades and weights without limiting production. The machine is designed for a speed range of 400 to 1200 feet per minute, with a minimum turn-over speed of 200 ft. per minute.

The satisfactory performance of the Nepco machine reflects the determination of Puseyjones to "live with" every job until mill management says "well done."

Whether you are interested in a complete new high-speed papermaking machine or in rebuilding your present machines for better profit, it will pay you to talk to a Puseyjones engineer now. Write or call us today.

THE PUSEY AND JONES CORPORATION

Established 1848. Builders of Paper-Making Machinery

Fabricators and Welders of all classes of Steel and Alloy Products

Wilmington 99, Delaware, U.S.A.

THE SIGN OF TRADE MARK SUPERIOR QUALITY

FEATURES OF 180" PUSEYJONES FOURDRINIER SPECIALTY MACHINE AT NEKOOSA-EDWARDS

Fourdrinier Part: Suitable for wire 180" wide, 85' long, with 26" dia. breast roll, 7⅛" dia. table rolls and 36" dia. suction couch roll. Wire changing is accomplished with "Rapi-Drape" device.

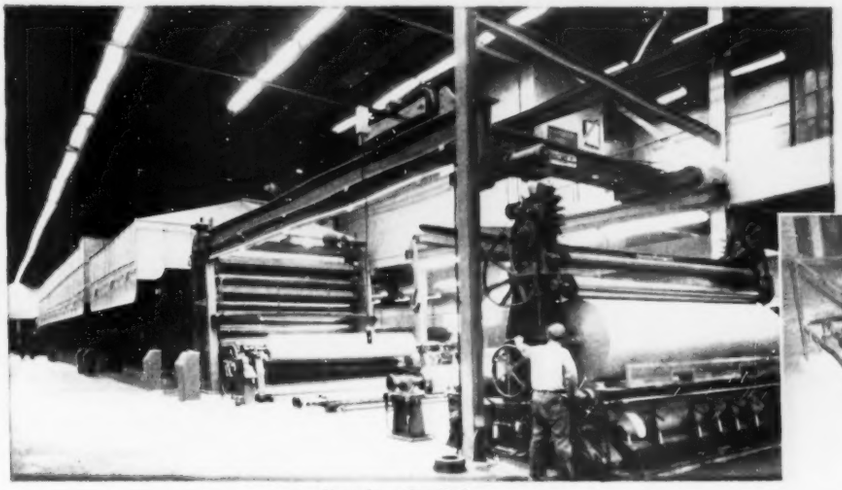
Press Part: Two main presses each consisting of a 30" dia. suction press roll and 28" dia. top roll with one set of plain press rolls. The third press is a reversed press. A plain bottom press roll may be used in the second press position if desired. A Pneumatic controlled water-marking device operates in connection with the third press.

Dry Part: Consists of 36 paper dryers and 12 felt dryers, all 60" diameter, in two separate sections, each section having 18 paper, 4 Feeney and 2 return felt dryers. A third section, consisting of 14 48" paper dryers and 2 felt dryers, follows a Size Press.

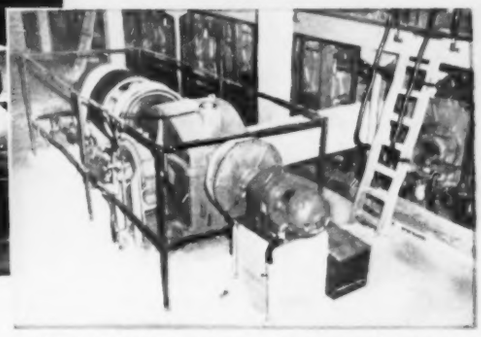
Drive: Individual cone drive unit design with enclosed hypoid reduction gearing and a main line shaft in the basement coupled to a Worthington steam turbine of 1000 BHP. Each dryer section drive unit is equipped with an air-actuated brake device for more quickly bringing dryers to stop when desirable.

Controls: All drive and machine controls set in consoles. Such units as lump breaker roll, upper press rolls and calender stack are entirely air controlled. Such units as breastroll lift, fourdrinier wire change and suction box oscillator are equipped with hydraulic controls.

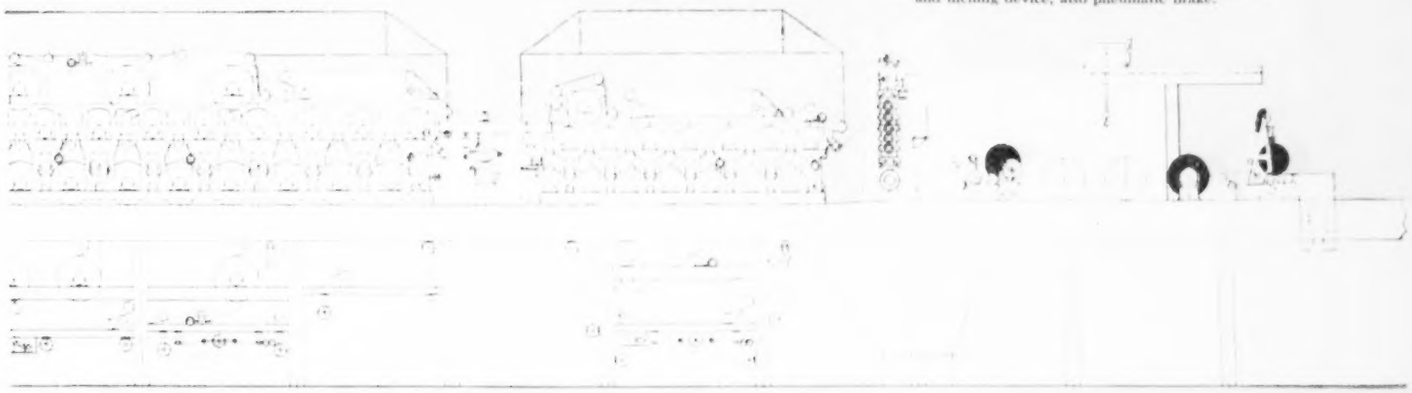
8-roll Calender stack, Beloit centerwind reel and high speed Cameron Winder with latest roll handling mechanism are provided at the finishing end.



View from Dry End.



Drive unit for dryer section with motor-operated starting and inching device, also pneumatic brake.



NEWS IN PICTURES—ABOUT INDUSTRY MEN COAST TO COAST

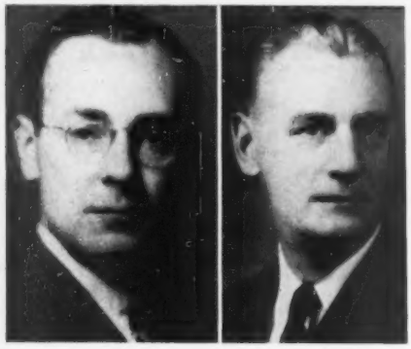
CROWN ZELLERBACH PROMOTIONS

FRANK A. DRUMB (left), Res. Mgr. at Camas, Wash., mill of Crown Z since 1947, promoted to Assistant Vice President in charge of Special Projects, and moves to San Francisco headquarters. His career started in Wisconsin Rapids with Consolidated Water Power & Paper, and he has been with C-Z mills or subsidiaries since 1927, starting at Camas as Asst. Mgr., then was Mgr. at Ocean Falls, and eventually, before returning to Camas, as Asst. Mgr. of Mfg., San Francisco.
GEORGE H. (PINKY) GALLAWAY (right), who becomes Res. Mgr. at Camas, where he started as pulp tester in 1933 out of Oregon State College. He was Asst. Mgr. after being Mgr. at Lebanon, Ore., and Carthage, N. Y.

DOWN ON PORT ST. JOE

L. to R.: ED RILEY, paper machine erector for Pusey & Jones Corp., caught by a PULP & PAPER editor's camera in Port St. Joe, Fla., where he is erecting new machine for St. Joe Paper Co.; T. S. CHAN and GEORGE EFNER, staff members for Cummins & Barnard, Ann Arbor, Mich., consulting engineering firm for new addition to St. Joe Paper mill.

PERKINS-GOODWIN APPOINTMENTS



CHARLES PATON (left) has been appointed Sales Manager of Paper Dept., Perkins-Goodwin Co., and NILS G. BJORNE (right) Assistant Traffic Manager, according to announcement by Louis Calder, Perkins-Goodwin President. Mr. Paton, with P-G since 1926, has concentrated on developing paper specialties. Mr. Bjorne has been with Perkins-Goodwin since 1928, when Scandinavian Pulp Agency was absorbed by this company.

FOR LINK-BELT CO. SALES

HUBERT J. McCORMICK, new Sales Mgr. of Caldwell Plant for LINK-BELT (2410 W. 18th), Chicago —products include overhead and screw conveyors, power transmission, bulk handling etc.

WOLLENBERG—HAMMETT

R. P. WOLLENBERG (left), who was elected Vice President of Longview Fibre Co., Longview, Wash., by its Board. Stationed in Longview, he is Manager of the container plants in Longview, Oakland, Calif., and Los Angeles. He formerly had worked in various key positions in Engineering and in operations in the pulp and paper mill.
JOHN B. HAMMETT (right), promoted to Manager of Mt. Hope Machinery Co., Taunton, Mass., according to President J. D. Robertson. Mr. Hammett had been combining duties of Sales Mgr., Asst. Treasurer and Adv. Mgr. He joined Mt. Hope in 1946 after submarine service in the Navy. Later Mr. Hammett announced promotion of FORREST C. AMES to Sales Mgr. He was former Chief Engineer of Rodney Hunt Machine Co.

PUSEYJONES PRES.—RIEGEL V. P.

LEROY A. GRETTUM (left) is new Pres. of Pusey & Jones Corp., Wilmington, Del., builders of papermaking machinery, succeeding Andrew G. Spiegelhalter, who has retired. Mr. Grettum, with P-J since 1946 has been Asst. to Pres. V. P. in charge of Operations, V. P. and Gen. Mgr., and—since last July—Exec. V. P. A native of Duluth, Minn., he graduated from U. of Minnesota in 1923.

R. L. KERRIDGE (right) has been elected Vice President of Riegel Paper Corp. Mr. Kerridge joined the company in 1934, after two years became Secretary to John L. Riegel, in 1945 appointed Assistant to General Supt. of the Milford mill, later Manager of Riegelsville, Hughesville and Warren mills. Named Assistant to the President in 1951 and will continue to hold this post.

IN MEXICO—IN BOSTON

MITCHELL W. THOM (left), former Mill Supt. in Victoria B. C., and native of North Dakota, is now Superintendent of the modern Cartonera Nacional S. A., (Postoffice Box 28) Tlalnepantla, Mexico. Tlalnepantla is in a new industrial town 8 miles north of Mexico City. Jose de la Macorra II led group that built the mill and his son is Asst. Mgr. Mr. Thom has had previous experience as Supt. in Mexican and Guatemalan mills.

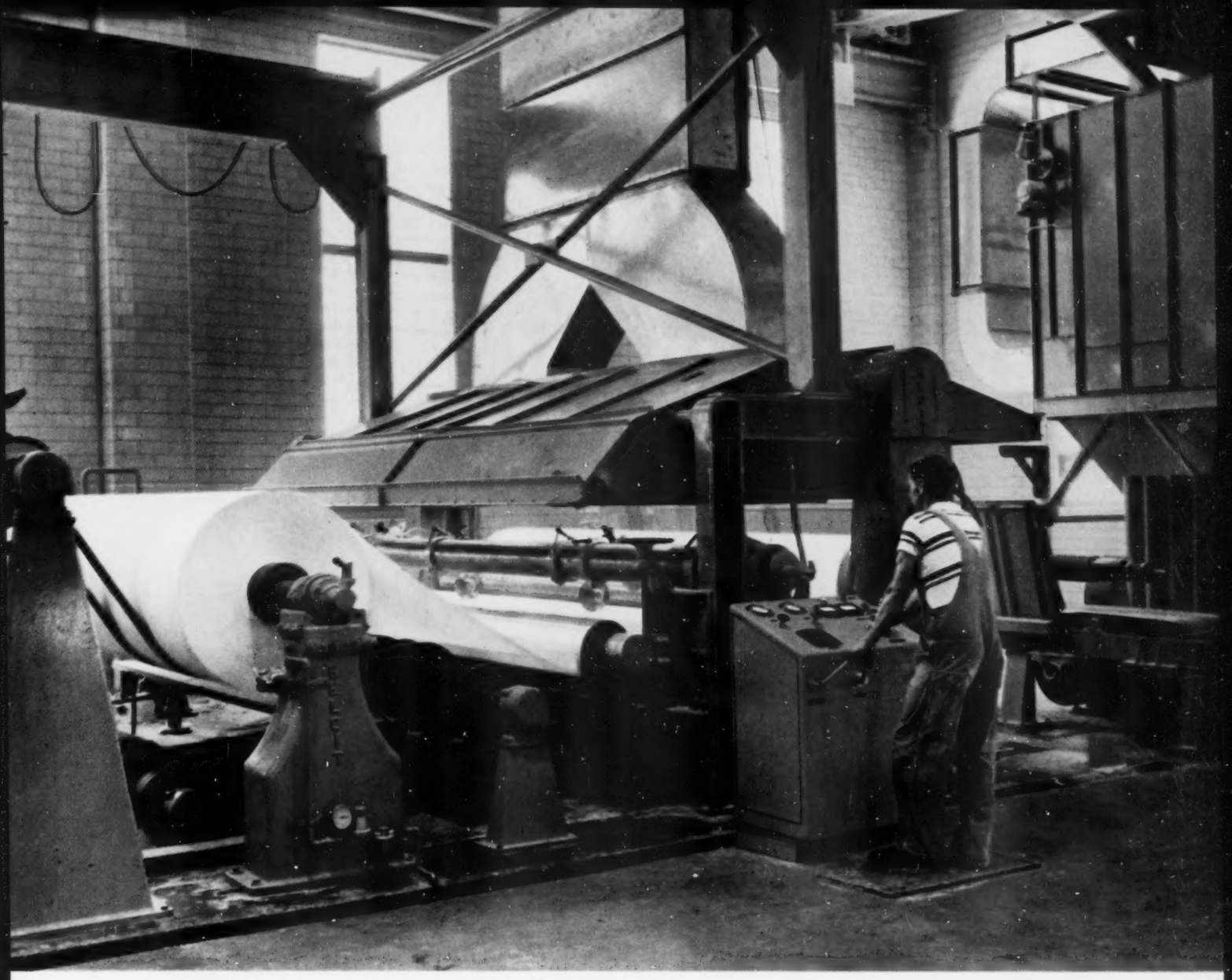
FREDERICK W. ARGUE (right), has been named an Assistant Engineering Manager of Stone & Webster Engineering Corp., Boston, Mass. He has been with the corporation since 1941, as Assistant Chief Power Engineer since 1948. Mr. Argue has a wide experience in solving design and operating problems of steam electric power stations and has prepared many steam and power reports for industrial and public utility concerns.

ESCO LTD. EASTERN OFFICE

ESCO LTD., Canadian subsidiary of ELECTRIC STEEL FOUNDRY CO., Portland, Ore., has moved its Eastern Office to new quarters at 2480 Dufferin St., Toronto, Canada, and it is under management of TOM FEE, shown in picture above in new office. BILL BUCKLE and TOM HARRIS are new additions to the Toronto sales force. Stainless steel pipe, fittings and valves, logging and sawmill equipment and earth moving equipment are major items in ESCO's lines.

BULKLEY, DUNTON EXPORT HEADS

REORGANIZATION OF EXECUTIVE staff of Bulkley, Dunton Paper Co. S. A. (l. to r.): GEORGE R. COBEAN, former President, who became Chairman; FRANK W. SMITH, former Vice Pres., became President; ALBERT ANDREWS, who became Vice Pres. Mr. Smith also became Vice Pres., Bulkley, Dunton Paper (Far East) Co., Inc., a position Mr. Cobean had held. Mr. Andrews returned a year ago from South Africa where he headed a B-D office. Mr. Cobean and Mr. Smith have traveled the world over for B-D.



Hoberg Paper Mills, Green Bay, Wisconsin

IN ALL TYPES OF WINDERS, Beloit "know-how" means ease of operation, high production. The driven-tape unwind-stand for this tissue winder maintains crepe in the lightweight sheet and permits rapid starts without danger of snap-off. Winder has clean-cutting shear slitters, separately driven winder drums, roll weight-relieving air cylinders, efficient roll handling equipment.—*Beloit Iron Works, Beloit, Wis.*

BELOIT

WHEN YOU BUY BELOIT...YOU BUY MORE THAN A MACHINE!

PAPER MACHINERY

MODERNIZATION

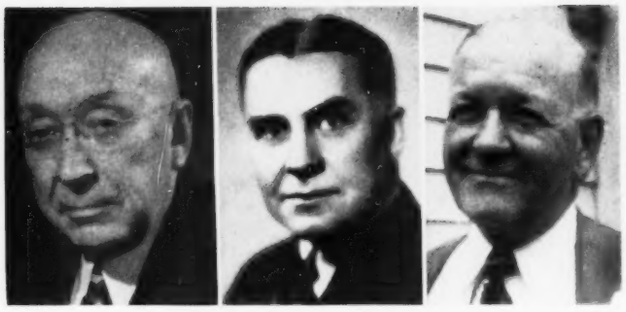
ITS 1946-1953 PROGRAM

AND WHAT IT HAS ACHIEVED

Mosinee Paper Mills Company at Mosinee, Wis., is one of the pioneer sulfate mills of America, and of the whole world, for that matter. It is one of the earliest mills built from the ground up for kraft. It was built in 1910 by Olai Bache-Wiig, who introduced the sulfate process on the North American continent. He picked the location on the Wisconsin River, virtually smack in the geographic center of the state of Wisconsin.

The Wisconsin River, with its numerous privately owned, tax-paying dams, is one of the hardest working rivers in America for its size. To north and south of Mosinee along the river, are some ten other mills. Four are sulfate; the rest sulfite. Mosinee could be described as the middle buckle in this tight little belt of mills—all in a 100 mile span. Their thinking and outlook are pretty much alike. They work well together on common problems. They work closely, too, with the Fox Valley mills to the east, but their problems and projects are not always similar.

Mosinee has met competition of better, big mass-producing kraft mills, by specializing in high quality fields. Its three machines now make 165 tons of special papers daily.



L. to R.: A. P. WOODSON, PRESIDENT; GEO. L. RUDER, VICE PRES.; NORMAN S. STONE, VICE PRES. & GENERAL MGR.

It owns Bay West Paper Co. at Green Bay, Wis., where 20% of its output is converted into folded and roll towels, bath towels and windshield wipe.

This is a story of the steps taken by Mosinee to improve its facilities for expanding specialization. The author, Mr. McPherson, now assistant plant manager, was formerly project engineer and worked closely on this program since joining the company in 1946.

Incidentally, 158 of its 567 employes—28%—have given 25 years or more of continuous service to Mosinee Paper Mills Co.

By John A. McPherson

Assistant Plant Manager, Mosinee Paper Mills Co.

Mosinee's postwar modernization program initiated in 1946 and costing in excess of $5,000,000, was designed primarily to increase this production of its high quality pulps and papers. These are the seven major projects:

1. Complete modernization of the wood room, with new barkers, chipper, etc.

2. Enlargement of pulp mill. Addition of two digesters and enlargement of others are the main features bringing capacities to 175 tons a day.

3. A new brown stock washing system. This and other pulp processing improvements cut fiber and chemical loss and improved quality and production.

4. New 5,000 k.v.a. turbine and electrical distribution system. A survey in 1949 laid the plan for ultimate needs and effected many economies which are described.

5. Rebuilding of No. 3 Fourdrinier machine (112 in.). New inlet, rolls, dryers, reel, etc., brought increased capacity and boosted the speed for lightweight specialties to 1,100 f.p.m.

6. Rebuilding of No. 2 Fourdrinier machine (112 in.). Dryers, rolls and other auxiliaries additions increased capacity and quality and this was completed in 1952.

7. Rebuilding of No. 1 Fourdrinier machine (140 in.) and stock preparation additions. This project was being completed early in 1953. New inlet and Fourdrinier, more dryers, new winder and reel, as well as stock preparation and cleaning equipment were the main features. This will improve capacities and quality in the production of creped and flat specialties.

The Wood Room

The original wood room, designed for a daily pulp capacity of 50 tons, was built in 1910 and with minor modifications had continued in operation throughout the entire period of mill expansion and modernization to the recent pulp production rate of 155 tons.

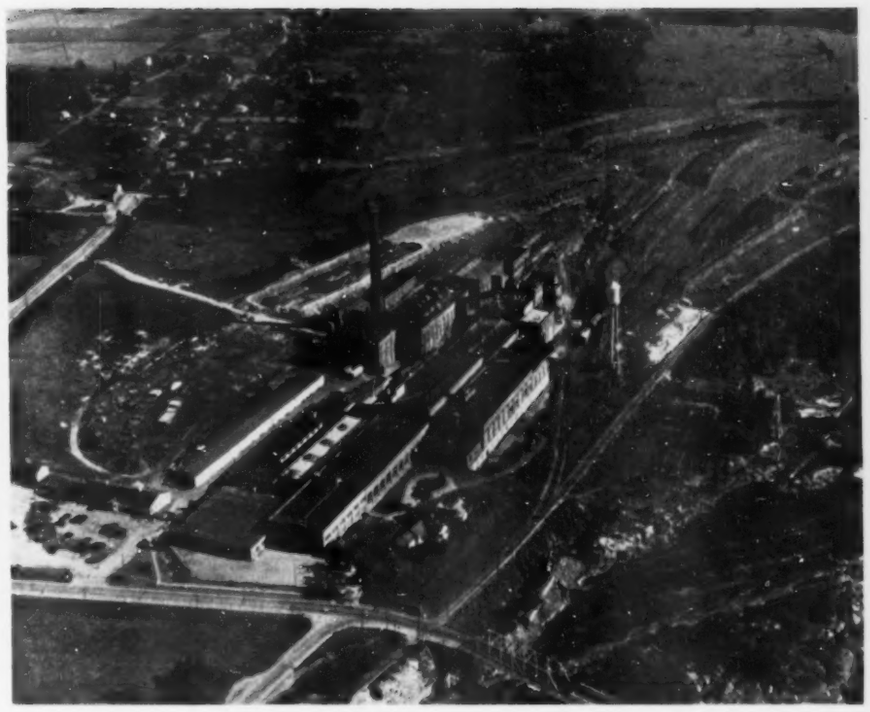
The former wood preparation department consisted of two separate buildings housing sawmill and woodroom operations respectively. Pulpwood, delivered on flat cars, was unloaded by hand to the deck and segregated by species in order to provide specified types of chips for the individual digester chip bins. The bull chain conveyed 100 in. bolts to a jackladder and three saw slasher and the two-foot bolts were conveyed to bolt lofts in the wood room. A separate bull chain conveyed oversize logs to a steam cut-off saw and two splitters, the split logs being delivered to the bolt loft conveyor.

The wood room housed nine batch barkers, approximately 9 ft. in diameter by 10 ft., in addition to the bolt lofts, chippers, chip screens, rechippers and the conveyor system.

Bolts from the lofts were hopper fed into the batch barkers and were wet barked for varying periods dependent on species, age and amount of frozen bark during the winter months. Barked bolts were conveyed to a three knife and a four-knife chipper, incompletely barked wood being sorted and returned for rebarking. Chips were screened over vibrating chip screens, the oversize fraction going to rechippers.

This arrangement provided satisfactory wood preparation, but a continuing production increase necessitated operating

ANOTHER AIR VIEW OF MOSINEE PAPER MILLS. The Recovery Plant, three Paper Machines and Pulp Mill are in background, with wood piles beyond. At far end of buildings a new Wood Room has been added. In foreground is Finishing Dept. Offices are in small wooded area in foreground.



the barkers 24 hours a day and later adding increasing amounts of peeled wood in order to keep pace with pulp production. These factors, plus high maintenance and labor costs, brought a new wood room project into the recent program for mill modernization.

In early 1951 the wood room project was undertaken under direction of Charles T. Main, Inc., of Boston, consulting engineers. The installation was designed to provide modern equipment for wood handling and to produce chips of adequate uniformity and quality at low cost for the production of high grade sulfate pulp.

A 134 by 82 ft. addition to the existing saw mill building added sufficient space for all new equipment under one roof, leaving the old wood room free for storeroom and future chip silos.

Hot Pond

A reinforced concrete hot pond, consisting of two 220 ft. by 11 ft. by 10 ft. deep parallel sections, was built adjacent to the old log deck. Each section is capable of holding 75 cords, allowing pond filling at the start of each shift. Double tracks on each side of the pond are provided for end-staked flat car spotting. Unloading is done with a new 40-ton American Hoist and Derrick Dieselectric Crane with a 1¼ cord Blaw-Knox bucket. The crane handles yard operations when not switching and unloading at the pond.

A 5000 g.p.m. Allis Chalmers circulating pump for each pond section moves the bolts toward the jackladder, and hot condenser water is pumped to the pond. The designed soaking period of approximately four hours at 70° F. is adequate for the removal of snow and ice to provide bark softening to minimize time barking.

Slashers

Two D. J. Murray Mfg. Co. four-chain jackladders, installed at the ends of the ponds, feed the Murray 60 in. single saw slashers and the four-foot bolts are conveyed to the barkers. Sawdust drops through hoppers to the refuse conveyor system. Final alignment at the jackladders and slashers requires one man.

Conveying Equipment

Extensive new conveying equipment was supplied throughout by Link-Belt chain conveyors for bolts, the supports and mechanical equipment for two U. S. Rubber belt bolt conveyors, similar equipment for three belt chip conveyors and the belt bark conveyors, and a sawdust screw conveyor.

Double strands of Link-Belt C-132 conveyor 115 ft. long handles logs from slashers. Similar single strand chain handles rejected logs from the barker. Refuse from barking goes on a 24 in. 56 ft. long belt conveyor with 100 idlers driven through a Link-Belt helical gear and roller chain. The same kind of drive is on a 60 in. belt to chipper, 105 ft. long. From chipper to storage the belt is 30 in. wide, 205 ft. long with 45 degree idlers.

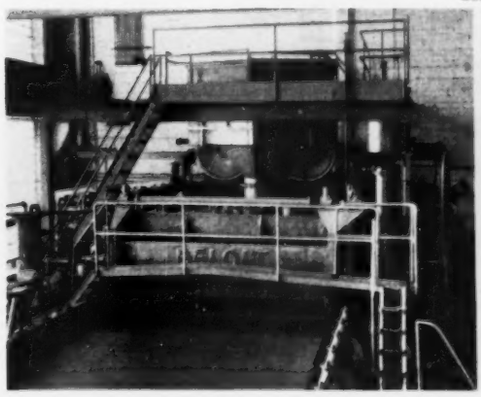
Barking Drums

Two of the Link-Belt chain conveyors carry bolts from slashers to the rubber belt feeding two Fibre-Making Processes, 12 x 45 ft. suspended chain type drum barkers. One man operating a steel plow at the first barker can regulate flow of wood to the drums, which are for either wet or dry barking, each drum being V-belt driven by a 200 HP motor. Experience to date has indicated that dry barking has been satisfactory and the use of water in the drums may be unnecessary.

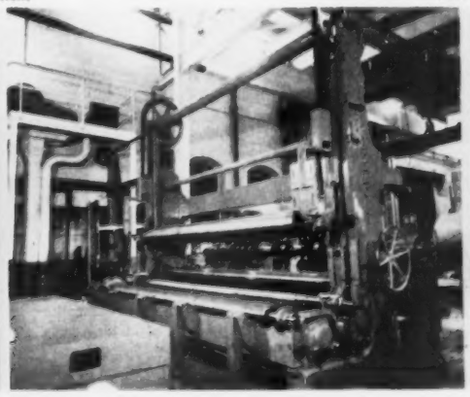
Longer retention of the wood in the barking drums is accomplished by adding successive 8 inch dam channels at the drum discharge, the use of three of the four available dam channels per drum giving sufficient retention at the present barking rate to completely bark 95% of the jackpine used. A higher percentage of spruce, however, is incompletely barked. Rejected bolts are sorted at a deck adjacent to the drum discharge conveyor and are returned for rebarking.

Bark is scraped into a conveyor between barkers and is delivered to a bark press discharging into the refuse conveyor. All bark and sawdust are burned

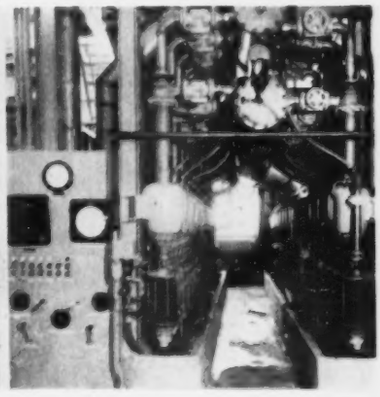
LEFT—BELOIT STAINLESS STEEL PRESSURE HEADBOX for rebuilt No. 1 Machine at Mosinee Paper Mills.



MIDDLE—BELOIT SUPPLIED THIS 3,600 F.P.M. WINDER for No. 1. To left is hydraulic winder bench.



RIGHT—SIDE VIEW of 32 BIRD MACHINE CO. Dirtecs for Mosinee's No. 1 with control panel at left



in a bark boiler. The bark removed in the drum is dryer than it was under the batch wet barking system, resulting in higher steam production.

Bolts are showered on the discharge chutes from the barkers where dirt and bark particles are removed before chipping.

Chipper

A 60-inch rubber belt delivers barked bolts past the sorting deck to an 88 inch 10-knife, D. J. Murray chipper. The chipper, equipped with an integral card breaker and blower delivering the ⅝ in. to ¾ in. chips to a cyclone, is mounted on Fabreeka vibration pads and is powered by a 400 HP motor. Comparative chip analyses between the new and old chippers indicate a substantial reduction in sawdust and oversize chips and a higher percentage within the ideal limits.

Chip Screens

Chips are delivered from the cyclone into two D. J. Murray chip feeders profiding laminar uniform flow of chips onto the 5 ft. by 14 ft. Lo-Hed Allis Chalmers vibrating chip screens. The screens were a part of the former system. Oversize chips are delivered to a 36 in. D. J. Murray disc chip cutter and are then blown to a secondary cyclone for rescreening. Sawdust is blown to a third cyclone over the refuse conveyor. Accepted chips are belt conveyed to the old conveyor system from the former wood room to the chip bins.

Other Equipment

A Green Bay Foundry and Machine Co. North bark screen filters bark from the hot pond effluent before discharge to the river. Recovered bark is delivered to the refuse conveyor. Should wet barking be desirable, the barking water would likewise be filtered through the North screen. This innovation has provided a reduction in solids discharged to the river of nearly 90% with a consequent reduction in B.O.D., and is a significant move toward the elimination of stream pollution.

Additional equipment includes a Dings magnetic pulley for tramp iron in the chips ahead of the rechipper, a Samuel C. Rogers knife grinder and J. C. Corrigon "bin eyes" to indicate filled chip cyclones and bucket elevators. The former Nekoosa splitter was reinstalled adjacent to the sorting deck along with a storage platform for oversize wood.

Electrical equipment includes a 1000 KVA Westinghouse load center in a pressurized room and General Electric Co. and Westinghouse switchgear and motors. Push-button stations are located at all key positions, with interlocks where necessary, to regulate conveyors.

Building construction, equipment foundations and part of the equipment installation were handled by the Thomson-Abbott Construction Co., Marshfield, Wis. Electrical contractor was C. A. Hooper, Madison, Wis., and conveyor steel work was fabricated and erected by Northeastern Boiler and Welding, Ltd., of Green Bay, Wis. Operation over recent months has indicated a normal barking and chipping rate of 28 cords per hour with a probable chipping capacity of 36 cords per hour.

Digester Room

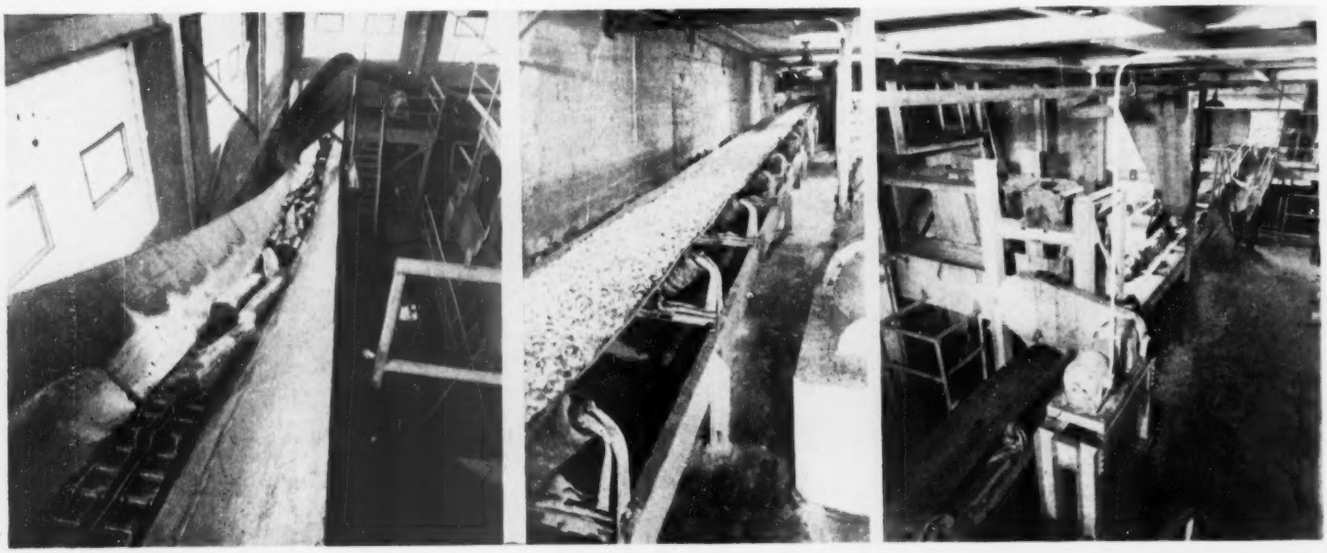
A continually increasing demand for more pulp with higher paper machine speeds and a desire to lengthen the cooking cycle with consequent improvement in pulp quality led to the program for increasing digester capacities and an improvement in cooking control. The six former 2.6 ton, 1250 cu. ft. digesters had

OPERATIONS EXECUTIVES at Mosinee (l to r): CHARLES M. (Mac) GREEN, Plant Manager of Mosinee, where he spent entire career of 27 years after graduating from U. of Michigan in ch. eng. Born in Kansas City, raised in Lake States, his family logged at Stevens Point in 1951.

JOHN A. McPHERSON, Assistant Plant Mgr. and author of this article. Born in Milwaukee, he graduated from Dartmouth in 1935, took graduate eng. at U. of Wisconsin. Was Chief Engineer at Wausau Paper Mills, 1939-42; Field Engineer with Oliver United, and after four years in war, ending up as Marine Capt., he joined Mosinee as Engineer.

ROBERT D. RUSCH, Paper Mill Supt., went to Mosinee two years ago from International Paper, North Tonawanda, N. Y. Graduate of Lawrence College and Institute of Paper Chemistry, Appleton, Wis.

HENRY C. CRANDALL, Technical Director, was born in Cable, near Ashland, Wis., graduated from Northland College, and studied graduate organic chem. at U. of Wisconsin. Was in dyestuffs industry in Ohio before joining Mosinee in 1936.



LEFT—LINK-BELT Type C-132 chain conveyor of two strands is shown carrying pulp logs from the Murray slashers. Similar single strand chain handles log rejects from the barker. Views at Mosinee's new Wood Room.

MIDDLE—U. S. Rubber belt is carrying chips from Allis-Chalmers chip screens to storage ahead of the modernized Mosinee pulp mill. Link-Belt provided 45 degree idler belt conveyor 30 inches wide.

RIGHT—LINK-BELT rivetless chain flight conveyor carrying refuse from F-M-P barking drums to a 24 in. Link-Belt rubber belt conveyor 56 ft. long with series 100 idlers in the Mosinee Mill new plant addition.

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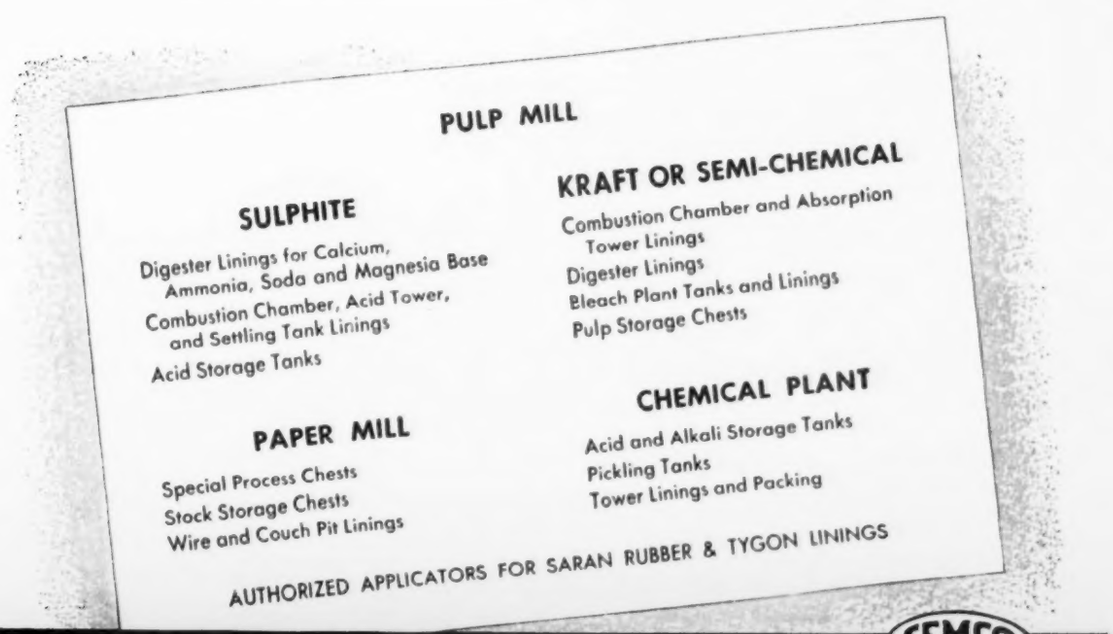
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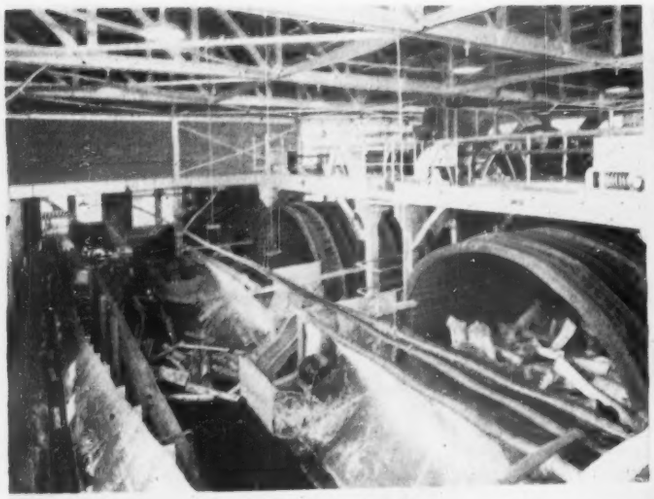

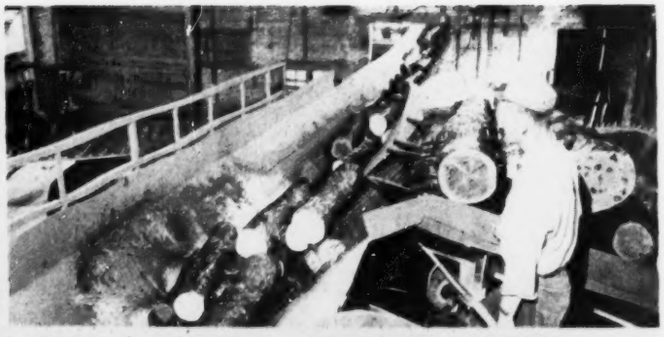

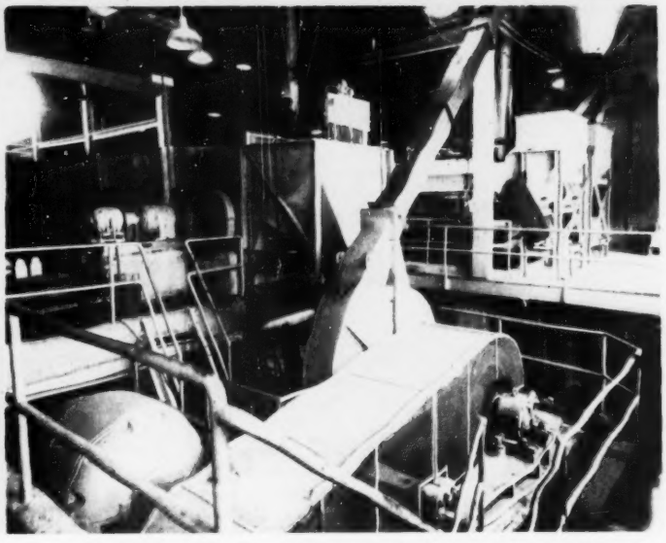

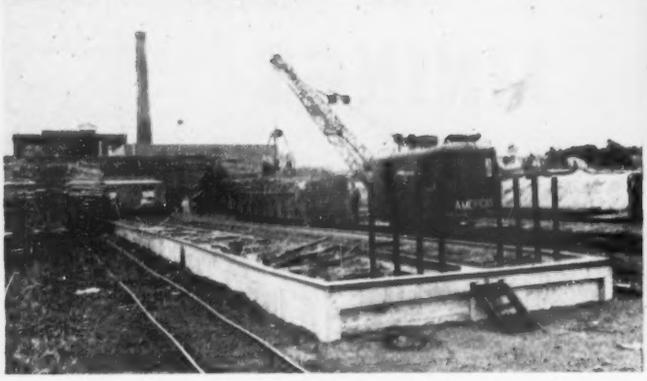

TOP LEFT—Two new Fibre Making Processes 12 x 45 ft. suspended chain type drum barkers at Mosinee Paper Mills. Two Link-Belt conveyors are shown—one carrying 60 in. U. S. Rubber belt handling barked logs to chipper and a single strand chain for rejected logs.

LOWER LEFT—BLAW-KNOX one and one-fourth cord Grapple is used with this American Hoist Dieselectric crane. This new Hot Pond is feature of Mosinee woodyard. It has two parallel sections, 220 ft. long, each with a capacity for 75 cords of wood.

TOP RIGHT—LINK-BELT double strand chain conveyor is handling pulp logs here as they come from the slasher on way to the barkers.

LOWER RIGHT—D. J. MURRAY MFG. CO. provided a new 10 knife 88 inch chipper and also a disc chip cutter. In background are seen Allis-Chalmers Lo-Hed vibrating chips screens which were part of old system. Link-Belt roller bearing is in foreground with L-B's helical gear and roller chain drive for the 60 inch rubber belt which leads to the chipper.

previously been lengthened to the building limit and further increases in paper production necessitated shortening the cooking cycle to a minimum time consistent with quality requirements.

Space limitations in the digester room made the installation of sufficient additional digesters impractical, but this building had not been excavated below the ground floor level. The plans therefore called for a 20 ft. excavation to the mill basement elevation, the setting of new digester support columns and footings and the addition of a 17 ft. section to the digesters. The two oldest were replaced with new A. O. Smith units and all completed digesters were 2500 cu. ft. with a 6 ton capacity. A. O. Smith Corp. supplied new digesters and also additions of carbon steel (A.S.T.M.-A285).

Excavation, footing and column erection and the replacement or modification of successive units were all carried out without an interruption in operations and the project was completed in late 1950. The primary contractor was C. R. Meyer and Sons Co. of Oshkosh, Wis.

Fibre Making Processes 1200 g.p.m. stainless steel circulating pumps and circulation system were installed on each digester. Stainless strainers are located a few feet below the center of the digesters and circulating liquor is pumped to distributors at the top, a small amount being pumped to the bottom cone.

The former Foxboro automatic relief controls were adapted to the redesigned digesters as well as the Foxboro automatictime-temperature control, the latter being changed to time-pressure for better control during the longer cooking cycle. Instrumentation was transferred to a new unitized control panel.

Black and white liquors are charged separately at present volumes through Foxboro automatic level controllers. Liquors are heated by low pressure steam from storage temperature to 210° F. as they are pumped to the measuring tanks and two high pressure heaters raise the temperature to 270° F. as the liquor is pumped into the digesters. Foxboro temperature and level controllers and the Swenson blow condenser controls are also mounted on the control panel. Yarnall-Waring blow valves were installed so complete control of digester charging, cooking and blow is available at the charging floor panel.

The digester rebuilding program resulted in considerable savings in labor, steam and chemical costs and provided additional tonnage of cleaner stronger pulp.

Brownstock Washing

Primary considerations in the decision to install a continuous vacuum washing system included high maintenance costs and increasing obsolescence of the diffusers, high fiber and chemical losses, as well as labor cost, and a need for uniformly washed, extremely clean pulp for the paper machines.

An 8 by 10 ft. Oliver Ringvalve rewasher had been installed in 1941 to follow diffuser washing in order to improve pulp cleanliness and this unit was incorporated into the new system as the final washer. Two additional 8 ft. by 16 ft. Oliver Ringvalves were installed as primary and secondary washers. At a design capacity of 150 tons per day the 1050 sq. ft. of washing surface would result in 7 sq. ft. per ton of stock which was considered adequate for the efficient washing of Northern sulfate pulp.

The washing system after some subsequent experiments and modifications now operates in five stages with two stages on

(Continued on page 58)

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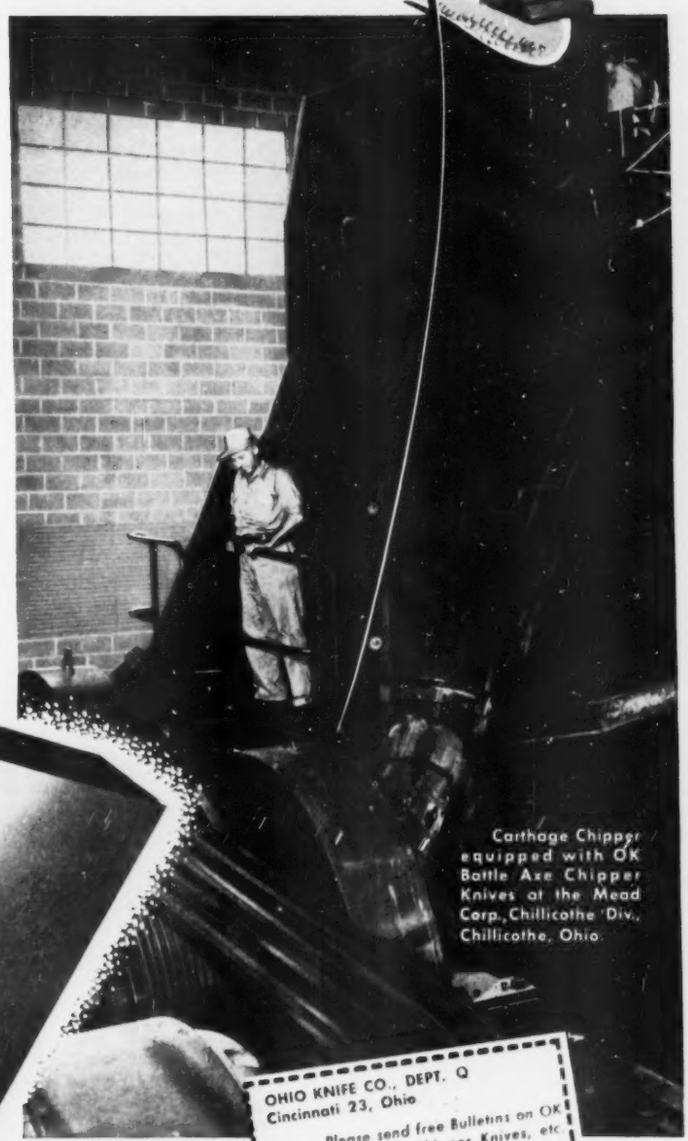
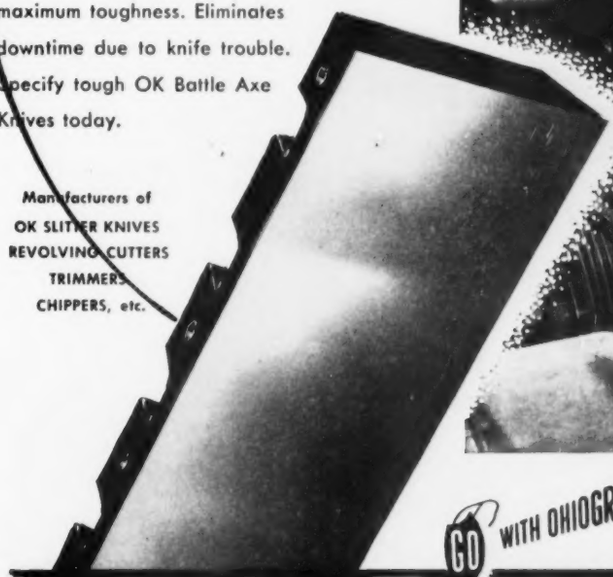


Carthage Chipper equipped with OK Battle Axe Chipper Knives at the Mead Corp., Chillicothe Div., Chillicothe, Ohio



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the first drum, one on the second and two on the third, the final weak effluent being sewered.

Supplementary equipment, in general, is standard. The blow tank was built to Oliver United Filter Co. specifications and has a capacity of about three digesters when filled to the center of the cylindrical section with stock at 8.5% AD. consistency as blown. A tangential inlet is provided in the top section and the 36 inch vent for blow gases is baffled to minimize pull-over of liquor or fiber.

Blow gases are exhausted to a Swenson digester blow surface condenser providing 150° F. water for the final washer. Feedwater is raised about 15° F. by the turpentine condensers ahead of the blow condenser.

Dilution liquor to the blow tank is introduced in the bottom conical section at a constant flow rate and is mixed with the stock by an Impco double propeller agitator. Automatic consistency regulation actuated by the load on the agitator was provided, but has been discontinued as there was no appreciable variation in consistency of the stock delivered to the knotters.

The Lawrence stock pump at the blow tank is equipped with an Electric Machinery Mfg. Co. electronically operated magnetic clutch drive controlled at the wash room operating floor. A uniform delivery of stock is provided at any desired pump speed and no valves are required to regulate stock flow.

Two Bird Jonsson vibrating knotters equipped with 3/8 inch diameter screen perforations are installed ahead of the first washer, the knots being conveyed to the chip bins for recooking.

Two Nash vacuum pumps were installed, one operating with the first and the third washer and one with the second. Separators are provided ahead of and after each pump draining to seal tanks and to the sewer respectively.

Separate foam breakers have been provided on the seal or service tanks for each stage providing the return of broken down foam to its own Baume' liquor resulting in a considerable reduction in dilution of evaporator feed liquor in contrast to the single foam tank system.

Instrumentation and control includes recorders for blow tank stock level and storage chest ahead of the screen room, liquor levels in all service tanks, wash water flow and temperature and the Baume' of evaporator feed liquor. Instruments were by Foxboro and Bristol.

Since the washing system was installed, daily pulp production has increased from 150 to 165 A.D. tons with no appreciable loss in washing efficiency. Uniformly clean pulp is being delivered to the paper mill with a considerable reduction in chemical and fiber losses.

No. 1 Machine Rebuild

The present mill modernization program was recently completed when No. 1 paper machine was shut down on Nov. 6, 1952 for a major rebuild. Downtime was about seven weeks, and production began in late December.

At this point it may be noted that the

KEY MEN AT MOSINEE (l to r): RUSSELL V. KNAPP, Power Engineer for over four years, after 27 years with Bailey Meter Co. He graduated from Kansas State.

HERBERT L. VOSS, Purchasing Agent, since 1939. He had been Pulp Mill and Laboratory Supt. and has been at Mosinee since 1925. Born at Waukesha, Wis.

SUMNER R. McSWAIN, Plant Engineer, is son of former Mosinee Master Mechanic. Has been at Mosinee 28 years. Graduated from U. of Wisconsin 1919.

FRANK N. FIXMER, Woodlands Manager, is graduate of New York State School of Forestry, 1933, was born in New York City. Previously was with U. S. Forest Service and Wisconsin Conservation Dept.

PETER FLADVID, Pulp Mill Supt., is a native of Mosinee, has been in the mill for 19 years.

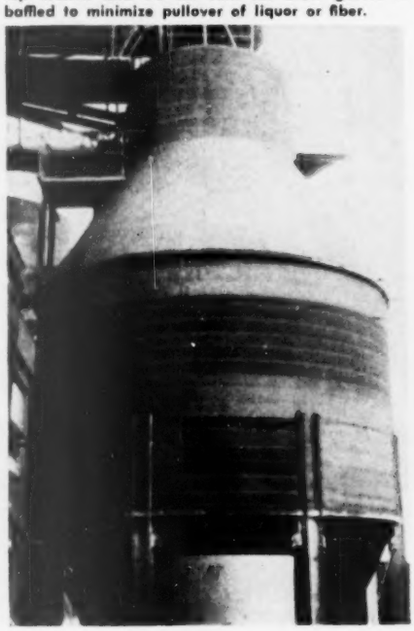
stainless steel piping and fabrication generally for all new installations was done by Brown-Hutchinson Iron Works of Detroit and Walker Welding & Machine Co. of New Lisbon, Wis.

Engineering of the project was handled by Charles T. Main, Inc., the Beloit Iron Works, and the mill staff. Beloit provided all major machine parts and incorporated some of their newest equipment. Crews worked in two 10-hour shifts continuously during the shutdown and the machine was dismantled completely, including a re-setting of all sole plates. The old dryers were trucked to Beloit, Wis., where the journals were remachined for anti-friction bearings, the surfaces were ground true and the dryers were balanced for 1200 feet per minute.

Stock Preparation

An E. D. Jones No. 3—2,000 lb. stainless steel Pulpmaster to slush machine broke, mill pulp and purchased pulp laps; 32 Bird Machine primary and secondary Dirtecs, one of the largest installations of its kind for the tonnage involved, to clean all pulp ahead of the machine; machine jordans connected for either series or parallel operation, and a completely new pumping and piping system.

THIS BLOW TANK for Mosinee Mills additions was built according to design of Oliver United Filter Co. for brown stock washing blows from digesters. Has capacity of 3 digesters when filled to center of cylindrical section. Tangential inlet is provided in top section and 36 in. vent for blow gasses is baffled to minimize pullover of liquor or fiber.



Headbox and Fourdrinier

A Beloit "air-cushioned" inlet of the newest design allows maximum weight and speed variation from 100 to over 1200 feet per minute. Headbox and inlet piping are designed to allow a minimum of turbulence ahead of the slice.

The wire pit and sump were completely tile-lined by the Stebbins Engineering Co. with special channels provided to minimize air entrainment ahead of the fan pump. The Fourdrinier, a Beloit cantilever design, is new and will considerably shorten time required for changing wires. Additional features include new suction boxes with a Broughton control system, new dandy and lump breaker rolls, an adjustable vari-speed shake and a new wire saveall and shower system.

Press Section

The first press was modified and the space between presses closed up to provide room for additional dryers. A newly designed Beloit "upside-down" second suction press allows straight sheet travel at this point. The third (creping) press was modified, also. New guides, paper rolls and press felt rolls were provided.

A Mount Hoper Machinery Co. expander roll was installed after the third press. Rolls were rubber covered by Manhattan and Stowe-Woodward with one Stonite on second press.

Dryers

The dryer section was extended, the three sections consisting of 12, 13 and 16 dryers, respectively. After the No. 12 dryer a new creping press for use in creping or as a breaker stack on flat sheets has been provided. Felt dryers were

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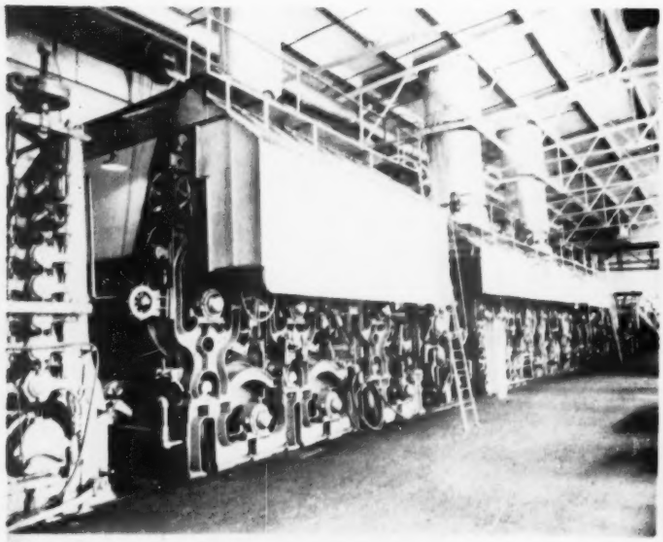

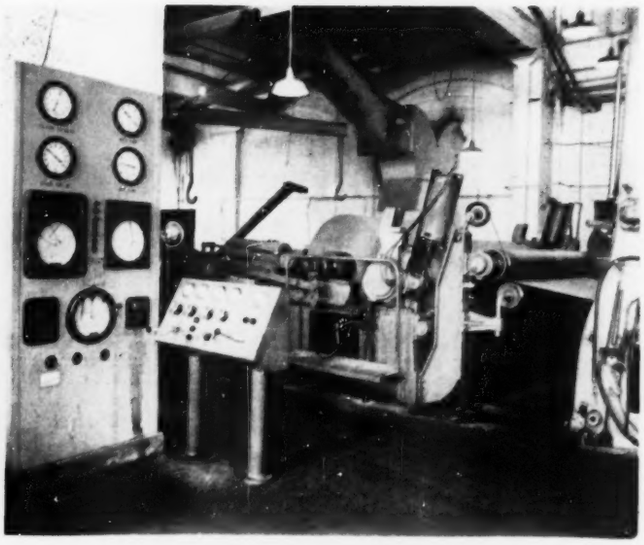

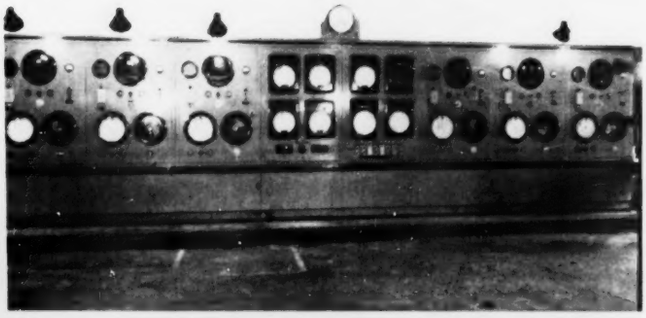

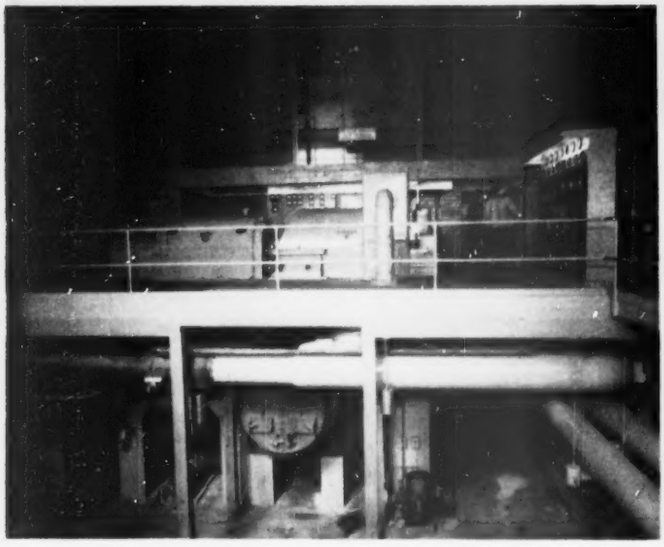

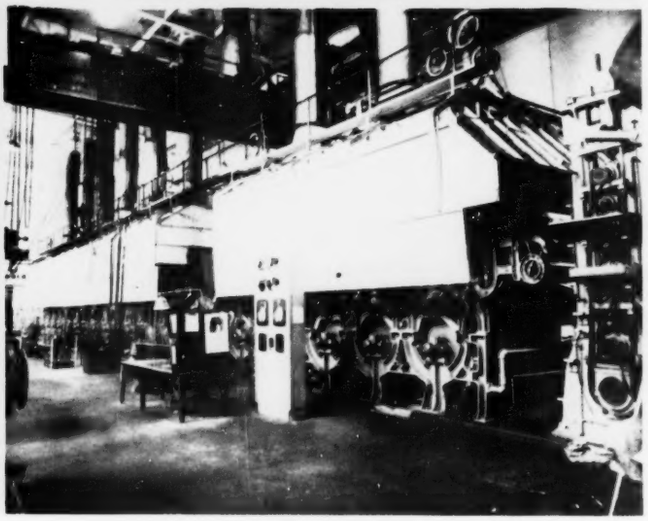

TOP LEFT—NO. 3 PAPER MACHINE at Mosinee Paper Mills is a 112 in. Fourdrinier machine. Eight Beloit high pressure dryers were among additions. Central States Engineering of Appleton cooperated in design.

MIDDLE LEFT—NEW WOOD PREPARATION PLANT for Mosinee houses considerable new equipment including barkers, chipper and modernized conveying systems.

LOWER LEFT—NEW TURBINE ROOM is one of new attractions at Mosinee operations. Control panel is on mezzanine at right. Westinghouse supplied 4,000 kw. condensing turbine. Ingersoll-Rand supplied 8,860 gpm. pump for condenser.

UPPER RIGHT—MINNEAPOLIS HONEYWELL supplied steam flow meter on right; Foxboro Masoneilan, Bailey, other instruments for BELOIT Reel and Reel Control unit for the modernized No. 3 Machine.

MIDDLE RIGHT—FOXBORO CO. supplied this panel of instruments for digester controls at Mosinee Paper Mills where existing digesters were enlarged and two A. O. Smith digesters were added. Automatic relief system is equipped by Foxboro.

LOWER RIGHT—NO. 2 MACHINE at Mosinee was equipped with new Beloit dryers and other additions or replacements including Lodding doctors. This work was completed in 1952.

added, existing units relocated, and all new anti-friction bearing felt rolls installed.

The second dryer section operates on either high or low pressure steam with completely automatic controls for the entire steam system. A Midwest-Fulton drainage system was installed, as well as a Mason-Nielan moisture control system.

All dryers will be continuously lubricated and all production and felt dryers are provided with anti-friction bearings. Steam joints are all the Johnson type.

Stack, Reel and Winder

The existing calender stack was moved forward to allow for additional dryers.

(Continued on page 108)

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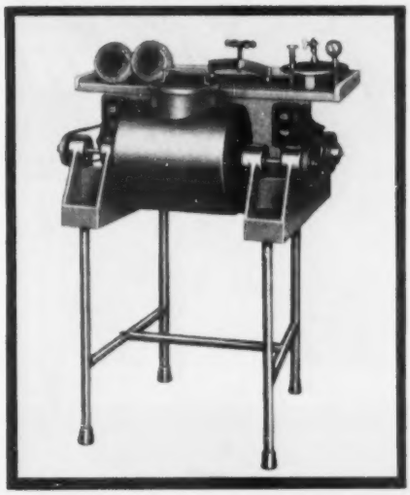
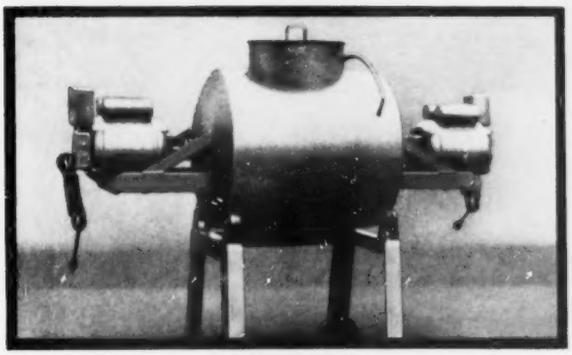
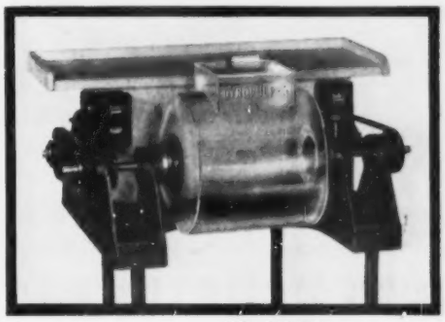


Model 3SP
Laboratory DynoPulper with Stainless Steel Vat. Can be used under pressure. Also available without pressure cover. Capacity 500 grams at 4% consistency.



Model 18
Pilot Model DynoPulper. Available in Carbon Steel or Stainless Steel Vat. Capacity 10 lbs. at 4% consistency.



Model 3
Laboratory DynoPulper with Plexiglass Vat. Capacity 500 grams at 4% consistency.

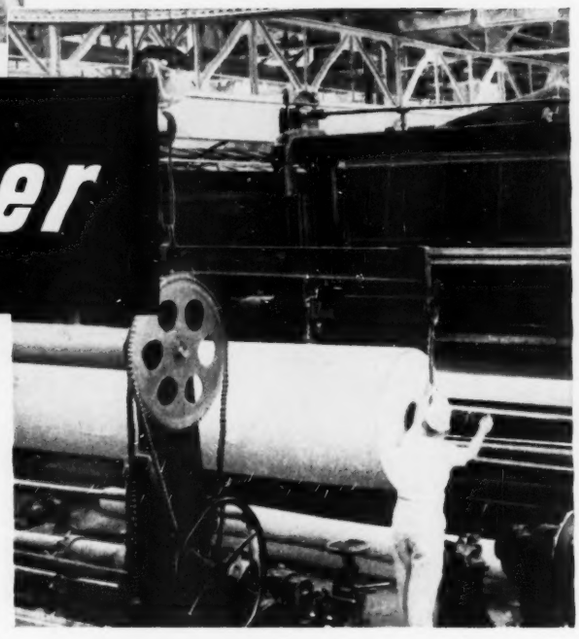
The DynoPeller
is the heart of all DynoMachines. Its concave face is lined with rough, hard carbide particles. As the DynoPeller rotates it causes a suction at its center that pulls the stock toward it. Centrifugal force then causes the stock to flow rapidly over the rough carbide particles under a gentle hydraulic pressure. This effective dynomizing action completely disintegrates the stock . . . separating each fiber from its neighbor while maintaining its original length.

These models available on a lease basis ($50.00 per month). Any charges will be deducted from the purchase price of a new lab model or a commercial machine.

RBR-3-53

RICE BARTON Research Corporation
WORCESTER 1, MASS.

from pulp logs



to paper

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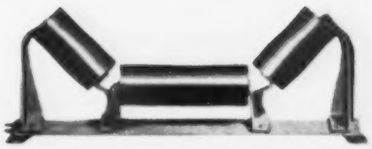
The illustrations on these pages give you some idea of the wide variety of choice that Chain Belt offers you. Your Rex Field Sales Engineer is specially trained to help you in your selection. Call him today, or for complete information write for Bulletin 52-51. Chain Belt Company, 4691 W. Greenfield Ave., Milwaukee 1, Wis.

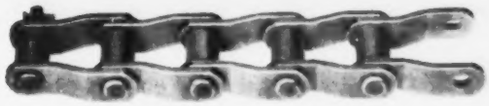
REX®

BALDWIN-REX®

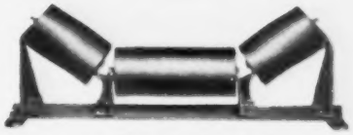
REX® COMBINATION DUROBAR® CHAIN has inside block links of malleable iron or Rex Z-Metal, and side bars of high carbon steel. These husky chains are great favorites for all types of conveyor service in pulp and paper mills. Eccentric barrel construction makes for better sprocket action and greatly reduces chain wear.



REX WOOD CHIP IDLERS are sloped to a steep 45° angle to greatly increase belt capacity. Chips can be piled higher and loaded closer to the belt edge without fear of spillage. Have same long-life design features as Rex standard idlers.

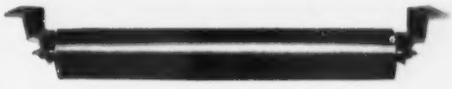


REX CHABELCO® STEEL CHAIN combines relatively light weight with high strength. It is used in both drive and conveyor service . . . can handle heavy loads and withstand severe shock and vibration. For those really tough jobs, you can't beat Rex Chabelco.



REX STANDARD TROUGHING IDLERS are used for wood chip, bark and pulp handling. Roller or ball bearing equipped interchangeable rolls are supported in brackets of unbreakable malleable iron. Triple labyrinth grease seal keeps grease in . . . dirt out.

BALDWIN-REX® ROLLER CHAIN is a high strength precision steel chain suitable for high speed drive service. It is available in single, double, triple and quadruple strand in a complete range of sizes and strengths to suit every driving requirement. Pitch range is from ¼" to 2½".



REX RETURN IDLERS are of the dead shaft type and are of the same rugged construction as Rex Troughing Idlers. Positive grease seal assures smooth operation through years of continuous service. Rex also makes flat belt idlers, impact idlers, self-aligning idlers and spiral return idlers.

REX FLAT SPRAY NOZZLES are ideal for cleaning logs as they emerge from woodyard or log pond. Their hard-hitting, knife-like sprays of water effectively remove sand, gravel, dirt and grit from logs. Special design permits maximum impact value with low water consumption.

REX BUCKET ELEVATORS are widely used for elevating wood chips, refuse and similar material. There is a Rex Standard Bucket Elevator to meet virtually every requirement of the pulp and paper industry. All major components . . . buckets, chains, sprockets, housing, etc. . . . are manufactured by Chain Belt Co., assuring you a uniform, reliable, easy to maintain unit.

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Rains Curtail Mills

Unprecedented January rains in Oregon resulted in high water somewhat curtailing production at both mills located at Willamette River Falls—Crown Zellerbach Corp., West Linn, and Publishers' Paper Co., Oregon City. The Crown wood mill and groundwood mill were down 4 days; No. 1, 2, 3, 5, 6, 8, and 9 paper machines down 3 days. No. 4 and 10 machines remained in continuous production as did converting and finishing departments. Publishers' groundwork mills A and H were down 6 and 4 days respectively, No. 1 paper machine was down 34 hours, No's. 2 and 3 machines both down 4 days.

Powell River Record

Powell River Co. set another world's record for a single day's production at one mill recently when its newsprint machines turned out 1117 tons.

TAPPI Delaware Section

"Development of Paper Properties" was discussed Jan 22 by the Delaware Section of TAPPI, Philadelphia, will Dr. Ward D. Harrison, vice president in charge of production of Reigel Paper, moderator. Others: C. M. Connor, W. C. Hamilton & Sons; Dr. Arthur J. Haug, Scott Paper Co.; Elmer Mitchell, Glassine Paper Co.; William D. Rice, P. H. Glatfelter Co.; and Dr. John P Weidner, Container Corp

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Several positions with good advancement potential available in large national chemical manufacturing organization, involving sale and service of chemicals to the paper manufacturers. Graduate chemists or chemical engineers preferred, but not essential. Please submit complete resume and indicate salary desired. Our sales staff has been informed of these openings. Write to P&P Box: 145, c/o PULP & PAPER, 71 Columbia Street, Seattle 4, Washington.

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Ten (10) new Ahlfors Screens, Type A-1 Stainless Steel, No. 316 throughout. Mounted with 14 and 12 cut plates, excellent for Sulphite or Kraft Pulp Screening. These screens were never used. Apply to P&P Box 143, c/o PULP & PAPER, 71 Columbia Street, Seattle 4, Washington.

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Bleached sulfate pulp and paper mill in Pacific Northwest requires graduate Mechanical Engineer to supervise all maintenance crew and service facilities. Successful applicant should have 7 to 10 years' experience in kraft mill maintenance work and be capable of organizing entire crew and cooperating with production departments. This is a real opportunity and challenge to the man who desires to move ahead with a growing organization. Send resume and salary desired. Write to P&P Box No. 138, % PULP & PAPER. 71 Columbia St., Seattle 4, Wash.

WANTED CONSULTING ENGINEER for large South American concern having complete and up-to-date knowledge regarding the manufacture of bleached linters and linter pulp. Give complete resume, references, etc. Write to P&P Box No. 142, c/o PULP & PAPER, 71 Columbia Street, Seattle 4, Washington.

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MAINE AGREEMENT — HOW IT HAS OPERATED

Maine Tree Farm

Fitting tribute was paid in January to two companies who have been carrying out successfully an unusual agreement since 1947 for management woodlands when Tree Farm awards were granted in Bangor, Maine, to the joint enterprise of Eastern Corp. and the Dead River Co. The award was for outstanding management of 101,608 acres of timberland 72 miles north of Bangor, owned by Dead River and on which Eastern holds exclusive pulpwood cutting rights.

The first Tree Farm of large size in Maine, it comprises the largest area to be so designated in the Northeast. Harold H. Holden, president of Eastern Corp., and Curtis M. Hutchins, treasurer of Dead River Co., received the awards. Presentations were by E. L. Giddings, Penobscot Chemical Fibre Co., and chairman of the Maine Tree Farm committee, and A. D. Nutting, Maine forest commissioner. Charles L. Tebbe, U. S. Northeastern regional forester, said the Forest Service considered the operating management plan as "reasonable, feasible, and one that should accomplish the purpose for which it was established."

The agreement set an objective for long-range cutting operations that would allocate cutting areas five years in advance and limit cuttings to three-fourths of the annual growth on the lands. The inspection record of the Maine Tree Farms System says supervision of the plan has been "excellent" and during the five years of operation the following forest products have been harvested: Hemlock, 31,236 cords; spruce and fir, 14,226 cords; hardwood, 6747 cords; hardwood logs, 2,810,000 bd. ft.; and pine logs, 8,026.00 bd. ft.

The Dead River Co. is one of New England's large timber owners, and is one of the important suppliers to forest industries in the area. Mr. Hutchins, who is said to have originally conceived the idea for the agreement, was president of Dead River at the time it was drawn up. He is associated in his company by Earl W. Spaulding, now president, and Dwight B. Demeritt, the latter, as woodlands manager, being specifically responsible for the program.

Eastern, incorporated in 1889, with plants at Lincoln and South Brewer, Me., is one of the oldest fine paper companies in New England. Its plant at Lincoln began operations shortly before 1889. The two plants require some 140,000 cords annually. The company owns, or holds long-term cutting rights, on 383,000 acres in Maine and Nova Scotia. A good part is held in reserve as only 17 or 18 percent of requirements are taken from these holdings.

MEN RESPONSIBLE for operation of Eastern Corp.—Dead River Co. Woodlands Management Pact. Top row, l to r: CHARLES G. PAINE, Vice Pres. and Gen. Mgr.; HAROLD H. HOLDEN, President, and WILLIAM EGGLESTON, Woods manager—all Eastern Corp. execs. Below, l to r: DWIGHT B. DEMERITT, Woodlands Mgr.; CURTIS M. HUTCHINS, Treasurer and former Pres., and EARL SPAULDING, President —all of Dead River Co.

Mr. Holden, as president of Eastern, succeeded Clyde B. Morgan about a year ago. His previous association with Oxford Paper as v.p. for charge of sales qualified him to understand problems of his new company, and he had a long background in the industry with Falulah Paper Co., Paper Makers Chemicals Co., (later merged with Hercules Powder). Charles G. Paine, vice president and general manager, and Wm. Eggleston, woods manager, are Eastern veterans who played a hand in formation of the agreement. Eastern's men have been leaders in pioneering in woodlands operations.

The first Allis-Chalmers "Stream-Barker" in the country was put in operation by Eastern. Eastern was first in the Northeast to truck wood over snow to mills in winter and to use cranes for loading trucks in woods. It used steam-driven log haulers many years in the "old days." Over 33 years ago it began use of tractors in woods. Now it is working with Improved Paper Machinery, Nashua, N.H., in adapting a Swedish design debarker for handling 4-foot and longer wood in diameters 3 to 18 inches. The goal is to bark at high speeds, to be able to move from location to location without difficulty, and to operate all year.

Both Dead River and Eastern are members of the nine-company sponsoring group of the 3800-acre Penobscot Experiment Forest (see PULP & PAPER, May, 1952) which was turned over to the Northeastern Forest Experimental Station for experimental operation.

Dead River—Eastern Plan

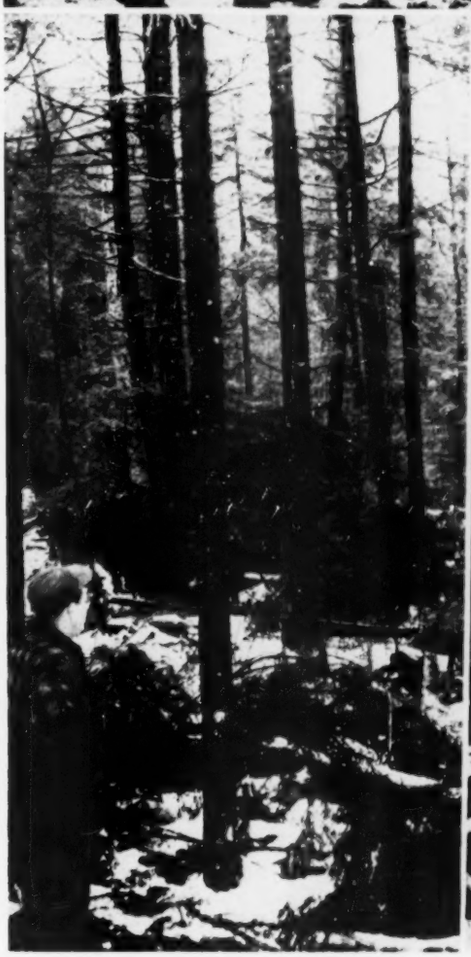
The popular story around Maine has it that the idea for the management plan came to Mr. Hutchins one morning while shaving. The agreement closely resembles agreements under which government-owned lands in Canada are leased.

Dead River is assured a maximum return on an annual basis in a way that will protect its property for perpetuity. Eastern is assured of desirable species and accessible supply near its mills on an economically-advantageous long term.

Forest Area: Of the 101,608 acres owned by Dead River in the agreement with Eastern, 86,043 are forested while the remaining 15.565 acres are in waste and water. The estimated volume in rough cords, pulpwood species 6 in. d.b.h. and up, amounts to 448,892 cords, an average of 5.46 cords per forested acre. Of this, 211,311 cords are spruce and fir; 149,-607 hemlock: 87,974 hardwood.

The lands have all been cut over at least once for long logs or some other product. The "mature forest," consisting of an operable volume of 59,082 cords of spruce over 10 inches; 25,579 cords of fir over 6 inches; and 77,560 cords of hemlock over 10 inches, was cut over prior to W. W. I. Softwood lands in parts of the tract suffered from budworm attack in

(Continued on page 70)



GROUP ABOVE accompanied a **PULP & PAPER** editor on visit to cutting operations of Eastern. Included (l to r) are: **ORIC O'BRIEN**, Dead River Forester; **HAROLD HOLDEN** Eastern's President; Don Millett, Treasurer of Eastern Corp.; **DWIGHT B. DEMERITT**, Woodlands manager for Dead River; **WILFRED MCKAY**, Eastern's Assistant Woods Manager; Kenneth Henderson, Eastern's Advertising Manager; Chas. G. Paine, Vice President and General Manager of Eastern and WM. EGGLESTON, Woods Manager of Eastern.

LOWER LEFT—Typical stand in Dead River holdings showing removal of all mature trees, with small diameter trees left for further growth and for seeding. Spruce and hemlock are cut over 10 inches d.b.h.; balsam fir over 6 inches; white pine over 14 inches and Norway pine over 10 inches. Hardwoods, cedar and poplar are cut when merchantable.

LOWER RIGHT—**ALL YEAR-ROAD** which is one of three built and maintained by Dead River for Eastern's logging operations. Eastern builds skid roads from these main roads into cutting areas. Logs are twitched out and bucked to pulpwood length at roadside.

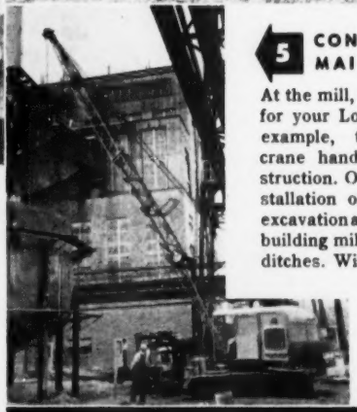
MECHANIZE YOUR Pulpwood Handling FROM START TO FINISH

1 FIELD COLLECTION . . . In any season, any weather, Lorain cranes load pulpwood in the woods. Here, a Lorain "TL" crawler crane, equipped with wood grapple, starts pulpwood on its way from a Canadian stand.

2 YARD STORAGE . . . Maybe your pulpwood goes to a collection yard for transferral to rack cars for mill shipment, or to be placed into storage for later mill shipment. Here, a 15-ton Lorain Self-Propelled crane, Model SP-254W, uses a gooseneck boom and 4-bridle sling to unload pulpwood directly from woods trucks to rack cars.

3 MILL SHIPMENT . . . After rack cars are loaded, the same Lorain that loads them switches over and uses a huge concrete slab "Hammer" to drive in extended logs, to neatly line up the sides of the load within railroad clearance. Here's a time-saving bonus with versatile Lorain cranes.

4 MILL UNLOADING . . . At the mill, rack cars are unloaded with a new Lorain "Rake" . . . with these exclusive advantages: (1) A positive and precise control of spotting the board with complete visibility; (2) Cars are cleaned quickly, easily — no hidden or stuck wood; (3) Less spillage of wood, less car damage, less clean-up . . . fewer accidents.



5 CONSTRUCTION MAINTENANCE . . .

At the mill, there are bonus jobs for your Lorain equipment. For example, this Model L50-K crane handles new plant construction. Other uses include installation of conveyor systems, excavation and material handling, building mill ponds and drainage ditches. With 5 interchangeable boom types, your Lorain can handle any size, shape or type of material.

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Plan now to mechanize for tomorrow . . . plan for bigger profits the Lorain way! Your Thew-Lorain Distributor will help you.

THE THEW SHOVEL CO., LORAIN, OHIO

THEW LORAIN

GROWING ASSURANCE

of a future supply of WEYERHAEUSER WOODPULP

As early as 1911, Weyerhaeuser Timber Company had plans to consolidate and hold large blocks of timber land for the growing of future timber crops. In 1924, the company employed experienced foresters to work out the details of these plans.

During the mid-thirties the development of a broad forestry policy proceeded at an increased pace. In 1941, the Clemons tree farm was established as the first of its kind. Thus began a nation-wide movement which recognized the fact that private owners of forest land could and must manage their lands for continuous production of forest crops according to sound forestry principles. Now, there are over 25,000,000 acres of such farms located in 35 different states.

Today, all of the Weyerhaeuser Timber Company's operating forest lands are divided into eleven tree farms containing over 2,500,000 acres of timber land. With a background of half a century in the timber business, Weyerhaeuser is now projecting its sustained yield forestry policy 100 years ahead! This is part of the company's *permanent production program* designed to provide a continuing and *increasing* timber supply for its mills.

ROADSIDE MARKER is presented to **HAROLD H. HOLDEN** (left), President of Eastern Corp., and **CURTIS M. HUTCHINS**, Treasurer of Dead River Co., by **E. L. GIDDINGS** (center), Chairman of Maine Tree Farm committee. This new Tree Farm is first of large size to be dedicated in the state of Maine.

1917-20. Those areas cut over prior to 25 years ago comprise about 39,600 acres or 46% of the total forested area. Of this "mature forest," about 35,000 acres is softwood and mixed wood land on which spruce and hemlock are the principal pulp species.

Growth: Permanent sample plots of ¼ acre each have been established, ¼ mile apart and on cruise lines ½ mile apart. These plots will be remeasured every five years and will become the basis for later growth prediction. But the management agreement is based on an average growth rate of .19 cords per acre, or a total growth of 16,408 cords per year. Growth rate was determined from Westvelds yield tables for cut-over spruce and fir stands in the Northeast, and takes into account length of time since cutover, density per acre as compared to standard plots, and composition of stand.

Silviculture: The forest is the result of cutting for logs, pulpwood and ties at various times in the past. Log cutting operations were frequently made in the old days for one or two species only, such as pine and spruce. Spruce and hemlock have been operated together, or perhaps spruce, pine and hemlock. In some cases, spruce and fir were cut for pulpwood leaving other species in residual stand.

Study of stand tables and examination of stands, plus fragmentary knowledge of the history of the old cutting operations has led to adoption for the first ten years, at least, of a cutting plan as follows:

Spruce—Cut all over 10 in. d.b.h. to have reasonable stand for second cut.

Hemlock—same.

Balsam fir—Cut all over 6 in. d.b.h. to reduce fir component of stand and prevent damage by budworm.

White pine—In general, cut over 14 in. d.b.h. unless removal will damage spruce, fir or hemlock.

Norway pine—Cut all over 10 in. d.b.h unless cutting will injure spruce, fir or hemlock

Hardwood—Cut to salvage before it becomes unmerchantable by reason of birch dieback or beech scale.

Cedar—Cut when merchantable for poles or ties.

Poplar—Cut when merchantable.

Cutting Budget: Quoting from the plan: "with an indicated allowable cut of 12,270 cords of rough wood per year, and discounting for possible insects, fungi and fires, it seems conservative to set the budget for the present (five-year term) at 10,000 cords. This is well within the original intent of the plan, namely, to build up the growing stock by cutting less than ¾ the annual growth. Annual growth is 16,408 cords, and annual cut of 10,000 cords is about 61% of growth."

It is interesting that while the whole plan calls for prolonging cuts in mature stands until immature stands are operable, and for cutting oldest stands first, it was endeavored to set it up so operations might be confined to single townships so far as possible to save expense and overhead.

Roads: Dead River builds all-year main truck access roads, while Eastern is responsible for maintenance and for skid roads from cutting operations to loading zones. Two permanent roads have been built—one of 12-¼ miles and the other of 8-½ miles—while a third of 8 miles has been bulldozed and will be graveled this summer. The intent is to have a main road within two miles of any cutting area.

Fire Protection: The inspection record of the Maine Tree Farm System says: "The owners have a supply of back pack pumps, two power pumps and 2,000 feet of hose available during fire season and some logging operations are shut down on "Class 5" days. Eastern also maintains on the property considerable fire fighting equipment. Slash has been removed on all operations along highways, property lines and railways. Roads normally used for logging are closed during dry seasons, particularly when the governor proclaims forests closed. The company actively supports the "Keep Maine Green" program with financial help and publicity. White pine blister rust has not been eradicated but was found to be low because of absence of fir in general.

Logging Practices: Most logging is mechanized. This year chain saws will be used for falling, cutting to skid logs and cutting to pulpwood lengths at roadside. When barking problems are worked out, logs will be barked in the woods in 4-foot or multiple lengths and long lengths, then slashed to pulpwood length either at concentration points or mill.

Woods equipment includes three cranes, for truck loading, a number of tractors and two conveyor loaders. Loaders find greatest use where logs are brought across a lake to a main road for slashing and loading.

Summary: These are main features of the agreement which finds officials of both companies pleased with progress. An amended management plan for the second five years, which began in 1952, is in operation. The cutting budget is subject to review at the end of this period. But with continued cooperation it seems certain the objective of sustained yield will be achieved, with advantage to both companies.

Northeast APA Holds First Meeting

The first meeting of the Northeastern Technical Committee of the American Pulpwood Assn. in 1953 was held in Manchester, N.H., January 14 and 15. More than 50 industry members were present to take in the field trip and to participate in the technical discussion which followed.

Champion-International Co. was host on the field trip when members visited the company's operations at Concord. There on demonstration for the first time in the Northeast was the Andersson debarker, manufactured in this country by Soderhamn Machine Mfg. Co. The demonstration equipment was actually a machine purchased by Champion-International and just placed into operation. A permanent installation was shown, with the exception of the take-off equipment which was temporary and set up in lieu of slashing machinery to come later.

Also shown for the first time in the Northeast was the Cary-Lift fork truck,

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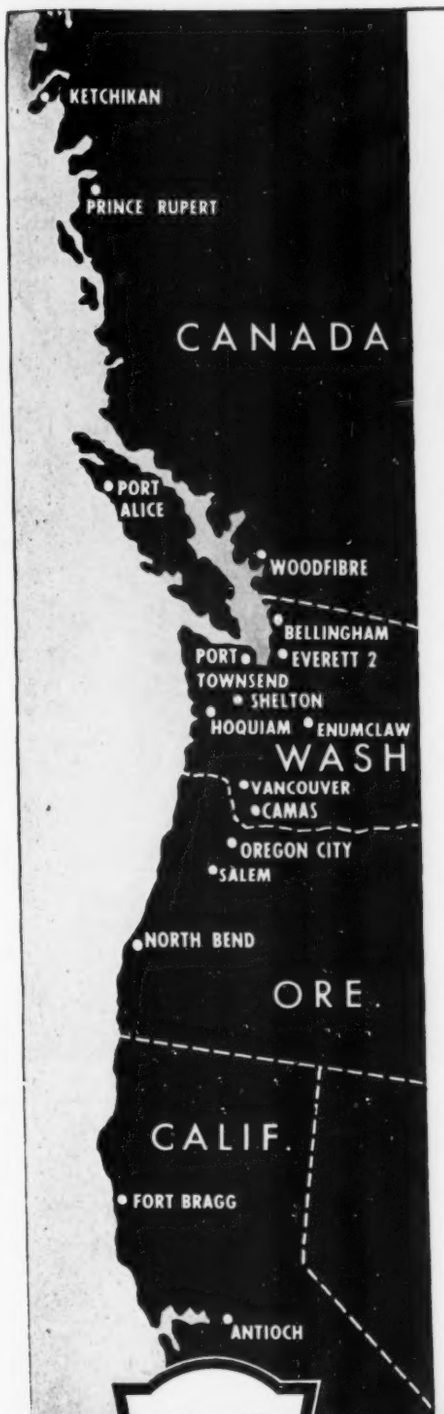

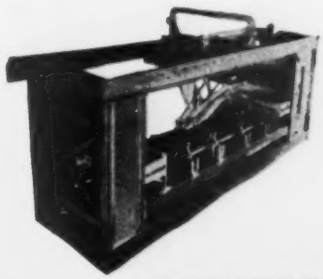

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FOR YOUR MILL, TOO!

SAWMILLS AND PULP MILLS of all sizes along the Pacific Coast — as shown on the map — are enjoying the greater savings in labor costs and timber conservation and in ability to produce cleaner chips, as afforded by the operation of a SUMNER Bellingham-type hydraulic log barker. Not shown are installations as far afield as Tasmania, Australia.

The savings cited above are available to Southern mill operators as well. The Bellingham Barker is manufactured in three size ranges. The large size handles logs up to 48′ long and has successfully barked logs 10 feet in diameter. The medium size, handles logs up to 24′ long and 60″ in diameter while the small package unit is for logs up to 10′ long and 36″ in diameter.

The medium size and "Package Unit," in many cases, can be engineered for adaptation to existing pulp mill Wood Rooms. The equipment for both size Barkers includes log handling equipment, nozzle carriage, and one-man control room, all built in one complete unit.

To mill operators all over the world, SUMNER equipment has always meant simple and sturdy construction, proven operating ability and prompt availability of parts. Write, wire or phone SUMNER for details on how the Bellingham Barker — the most popular on the Pacific Coast — can benefit you!

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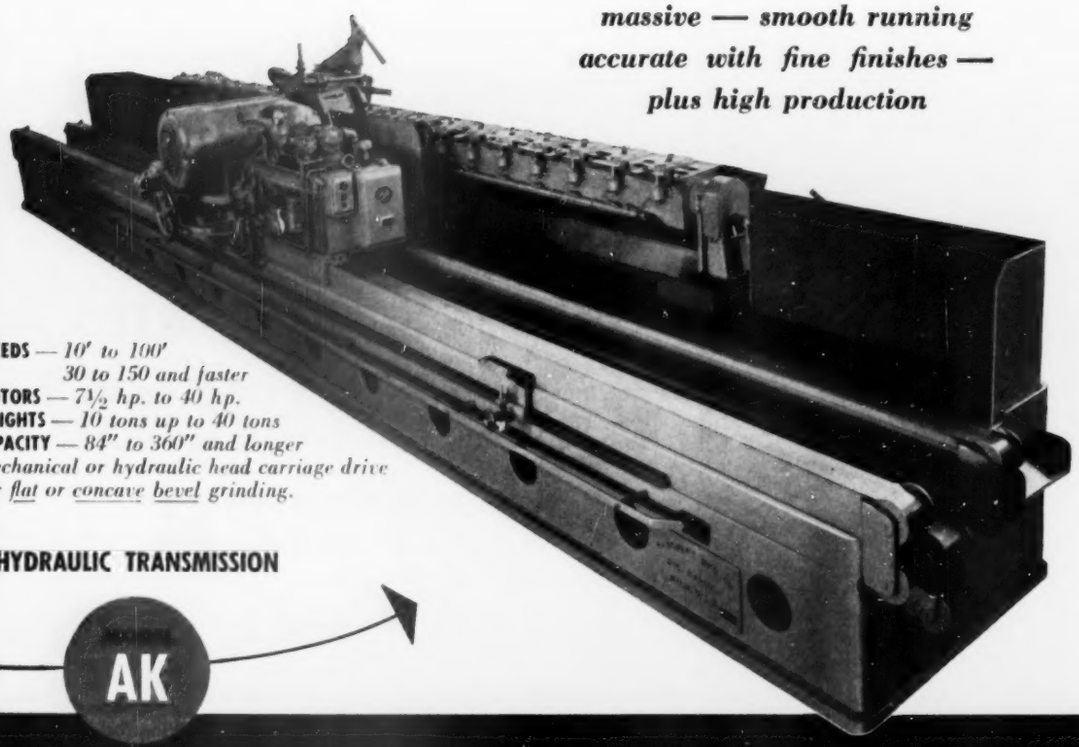

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MOTORS — *7½ hp. to 40 hp.*
WEIGHTS — *10 tons up to 40 tons*
CAPACITY — *84″ to 360″ and longer*
Mechanical or hydraulic head carriage drive for flat or concave bevel grinding.

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for the pulp and paper industries

HANCHETT *knife grinders*

FOR GRINDING CHIPPER — HOG — BARKER PAPER TRIMMER — DOCTOR BLADES

MODEL **GK**

FULLY AUTOMATIC TABLE DRIVES
HYDRAULIC OR ELECTRICAL

SPEEDS — *10′ to 80′ per minute (faster if required)*
CAPACITY — *32″ to 184″*

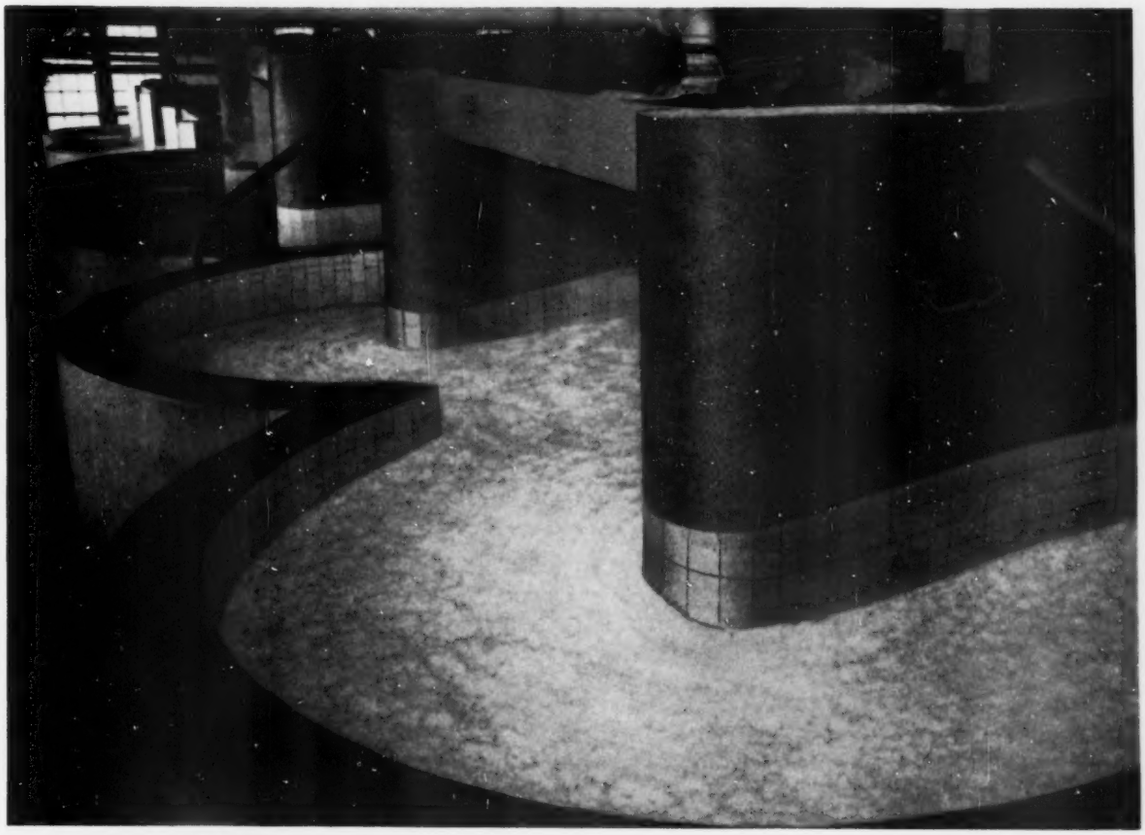
abrasives — segmental or cylinder type grinding wheels

FINEST KNIFE EDGES

HANCHETT MANUFACTURING COMPANY

World's largest manufacturer of knife grinding and saw sharpening machinery

MAIN OFFICE — Big Rapids, Michigan **WEST COAST** — Portland, Oregon



Better bleaching begins with

PENNSALT Sodium Chlorate

Progressive paper manufacturers can now take advantage of a superior pulp bleaching process based on the unusual bleaching ability of Chlorine Dioxide.

This material, made from Sodium Chlorate, bleaches wood pulps much whiter and brighter than any other commercial bleaching agent—yet without impairing the pulp's physical or chemical properties. It also destroys wood and bark specks in the pulp, thus giving a cleaner end product. Furthermore, its powerful and selective bleaching action allows the use of woods ordinarily considered unfit for quality pulp.

Chlorine Dioxide can be readily produced in a generator in your own plant, from Sodium Chlorate, sulfuric acid, and sulphur dioxide or organic reducing compounds. The gaseous Chlorine Dioxide is then absorbed in water and fed to the pulp bleacher.

A FREE TECHNICAL SERVICE

To help you take advantage of this new process, Pennsalt offers both chemicals and technical assistance. Pennsalt specialists will gladly aid you in designing an efficient generator and other equipment, and thoroughly acquaint you with this new bleaching process.

As for the Sodium Chlorate—key chemical in this method—Pennsalt supplies it in commercial grade, 99% guarantee, fine crystal size. It is shipped from Portland, Oregon, in 110-lb. one-way drums, 55-gal. returnable drums, and 8000-gal. tank cars.

If you should like more information on this process, or on Pennsalt Sodium Chlorate, write us today.

Pennsalt Chemicals

IN THE WEST: **PENNSYLVANIA SALT MANUFACTURING COMPANY OF WASHINGTON**
in Tacoma, Wash., and Portland, Ore.

IN THE EAST: **PENNSYLVANIA SALT MANUFACTURING COMPANY**
169 Widener Building, Philadelphia 7, Pa.

6-TON CRANE

for less than

$6300.00!*

...the new Model T-35 BANTAM®

*Price includes complete 6-ton crane unit with std. 25' boom, 12" block, 2 part line and extra cwt. FOB Waverly, Iowa. Truck and mounting charge extra. (Price subject to change)

Owners of over 3500 Schield Bantam shovel-cranes will tell you that the famous M-49 Bantam was "the finest machine in its class . . . unequaled in all-around performance and low maintenance cost." BUT wait 'till you see the husky new Bantam T-35! You get *20% more lifting capacity, plus a host of advanced operating improvements . . . still at the lowest price in the industry!* How can Schield Bantam do it, you ask? Simply because we specialize in building *only one size* shovel-crane . . . and because we build *more of them* than anyone else, we are able to give you a constantly *better machine, at a lower price.* For convincing proof, ask your Schield Bantam Distributor for a T-35 demonstration, or write today for *free descriptive literature,* containing full information.

Get these T-35 *plus* features!

- Power boom hoist standard at no extra cost — for extra precision.
- Rigidly mounted on special Bantam crane carrier, or any std. tandem, or heavy-duty single axle truck. Trucks promptly available through factory or local Bantam Distributors.
- Quality engineered for full power advantages, with machine cut gears and anti-friction bearings.
- Ruggedly constructed with extra-large clutches, shafts and brakes.
- Extra-wide trunnion base, plus 4 hook rollers, for added stability.
- QUICKLY CONVERTED to dragline, clam, backhoe, shovel, magnet, grapple, or pile driver for extra income.

SB-CR-22L

SCHIELD Bantam Co.

275 Park St., Waverly, Iowa, U. S. A.

World's largest producer of truck-mounted cranes and excavators

Bantam does a fast job of loading 12,000-lb. saw logs with tongs or sling . . . has high-speed mobility for spare time income on rentals or sub-contracts.

Rugged Bantam wood grapple mechanizes handling of pulpwood, fence posts, and railroad ties . . . gives big output at low cost with only 3-man crew.

For ditching, gravel loading, etc. Bantam drag bucket is easily attached to crane boom, or front-end can be quickly changed to high-speed backhoe attachment.

Interchangeable shovel front-end gives you a mobile, low cost tool for building and maintaining roads . . . also grades landings, camp sites, etc. wherever needed.

manufactured by Pettibone-Mulliken Co. of Chicago, which was described in detail in the Dec. 1952 issue of PULP & PAPER. Matt Laitlaw and Philip La Tendresse were on hand with the equipment for their company.

Gus Jacobson, president of Soderhamn, and W. C. MacAdam, woods manager for Champion-International, led the technical discussions on the debarker. This discussion featured a paper by L. Eberhardt, Bauer Bros. Co., on removal of bark from chips, and on slab debarking by Alec Murray. Price Brothers & Co., Ltd.

The technical review on the second day was led by E. D. Melcher, with specific subjects handled by Floyd Crocker—Wood Preparation Equipment; Buck Merrill—Hauling and Handling Equipment; Frank Willson—Training Safety & Supervision; and Louis Freedman—Industrial Forestry.

New Shovel Crane

A new, heavy-duty truck-mounted shovel-crane, providing 20% more lifting capacity than previous BANTAM models, has been announced by the Schield BANTAM Company, Waverly, Iowa. Conservatively rated at 6 tons capacity, the new ⅜-yd. heavy-duty Model T-35 is already in full production, with a complete line of matching attachments, including shovel, clamshell, dragline, back hoe, magnet, wood grapple and pile driver.

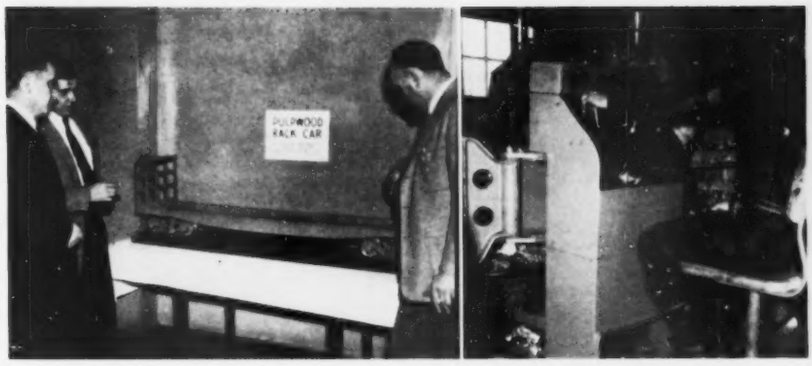
Major improvements over previous Bantam Model M-49 machine include: a stronger main frame with 54% increase in section modulus; larger shafts and bearings throughout; bigger diameter center pin; newly designed trunnion base with wider trunnion rollers and the use of 4 adjustable cam-type hook rollers instead of three. The T-35's vertical swing shaft bearing allows for almost twice as much radial load on the shaft, compared to the M-49 model.

Spruce Beetle Now Adds To Bug Troubles in Montana

The serious extent of a spruce beetle invasion and kill, discovered last year in northwestern Montana and west to Washington state, has resulted in considerable sale of this timber by the U. S. Forest Service to the Inland Empire paper mill in Spokane and at least one western Washington mill, as well as to many sawmills. Outside of woodpeckers, who are doing a good job, taking out wood is about the only effective way to fight it.

Beetles started after a blowdown in 1949 and reportedly killed a billion board feet this past year. If the infestation spreads normally, they may kill two billion feet next year. It is centered in the Kootenai National Forest.

Two other serious infestations have been going on in Montana for some years —one by the budworm in the national forests near Helena; the other by the pine beetle in lodgepole pine in national forests and Anaconda Copper lands in the southwest area near Butte.



NEW PULPWOOD RACK CAR on exhibit at APA meeting in Manchester. John P. Sheehan, of General Steel Castings Corp., manufacturers of the car, is discussing equipment with Wm. MacAdam, Woodlands Manager of Champion-International, and Richard Ashton, Assistant Manager for C-I. It was said that 2300 of these cars are now in service in South. At right is partial view of Anderssen Debarker, made in this country by Soderhamn Machine Mfg. Co., which was demonstrated on field trip. This shows "piano player" operation by hand and foot. Machine used in woods operations of Champion-International at Concord, N. H.

At Southeast APA Meeting

SOUTHEASTERN TECHNICAL COMMITTEE meeting of APA in Savannah, Ga., in December. This meeting discussed Utilization of Sawmill Waste for Chips. Chairman of meeting was C. H. NIEDERHOF, West Virginia Pulp & Paper Co., shown at left of first row. H. H. FLICKINGER, International Paper Co. and a member of program committee is in first row, third from left. JAMES A. HOLEKAMP, Southern Logging Engineer for APA is at right end of front row

Intensify War On Spruce Budworm

Four eastern Canadian pulp and paper companies art co-operating with the New Brunswick government in an all-out counter-offensive against the spruce budworm.

The campaign represents a continuation of the battle initiated last year by New Brunswick International Paper Co., described in the October issue of PULP & PAPER. The cnmpanits that are supporting NBIP now are Bathurst Power & Paper Co., Fraser Companies and Irving Pulp & Paper Co.

Formation of Forest Protection Ltd., a non-profit, co-operative enterprise, embracing the various groups mentioned, was announced by Vernon E. Johnson, president, who is also vice-president and general manager of Canadian International Paper Co. and New Brunswick International Paper Co.

Five airfields are being built, and from ohese it is intendtd oo spray from the air at least 1,000,000 acres of infested forest.

Director-Forester

The American Forestry Assn., has announced that, Lowell Besley, dean of the Forestry School at University of British Columbia, has been named executive director-forester of the association, effective July 1.

WOOD HANDLING EQUIPMENT MEN

PAUL HARRIS (left), new District Mgr. for Schield BANTAM Co., Waverly, Iowa, builders of truck mounted power cranes, draglines, clamshells, etc., with offices at Atlanta, Ga. He will cover East Tenn., North and South Carolina, Ala., Ga., and Fla. He moves there from Texas where he was sales engineer for explosives.

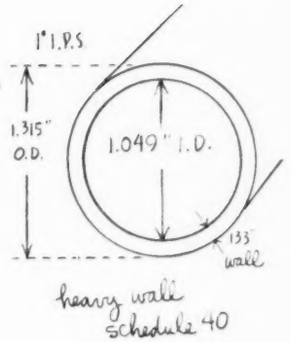
ROBERT B. HILL (right), assigned to Portland, Ore., District Sales Office of CHAIN BELT CO., manufacturers in Milwaukee of sprocket chains, power transmission equipment, conveyors, etc. Mr. Hill attended Gonzaga University, and formerly was in sales in the Pacific Northwest.

St. Regis Acquires Forest Rights

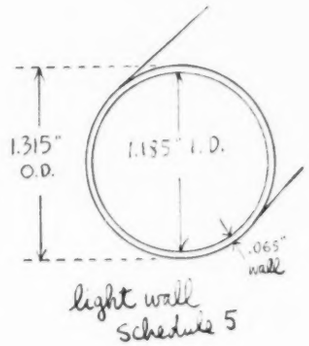
St. Regis Paper Co. has acquired forest management and cutting rights for 60 years on 34,200 acres of long leaf and slash pine in Worth and Turner counties, Georgia, through an agreement completed with the Aultman family of Warwick, Ga.

Why pay for Schedule 40 pipe where Schedule 5 is more than adequate ?

Back in the days when iron pipe was virtually the only kind available, it was necessary to specify this



But today with the high strength/weight ratio of stainless steel, the great majority of pipeline and process applications will have an ample margin of safety with this



All sizes of Carpenter Schedule 5 pipe will easily handle 150 psi working pressures. Sizes under 1½" will safely handle considerably higher pressures.

By specifying this light wall stainless pipe you gain many advantages:

1. You save money. Schedule 5 pipe costs about half as much per foot as Schedule 40.
2. Schedule 5 has the same O.D. as Schedules 10, 40 and 80—for hook-up with existing lines as well as for new installations.
3. Its larger I.D. increases flow and capacity in pipelines, exchangers and other equipment.
4. It's lighter. This means quicker and easier installation.
5. You can save 10% to 25% on valves, fittings, weld rods, etc., because smaller O.D. material can frequently be used.
6. Fittings are available from several manufacturers . . . and stocks of Schedule 5 pipe are carried by conveniently located Carpenter distributors.
7. Tubing sizes can now be replaced with light wall pipe . . . for ready hook-up with standard valves, pumps, etc.

Light wall Schedule 5 pipe saves dollars—and makes a lot of sense!

For complete data on Carpenter Schedule 5 Stainless Pipe, call your nearest Carpenter distributor or write us direct. We'll be glad to send you the information you need. THE CARPENTER STEEL COMPANY, Alloy Tube Division, Union, N. J.

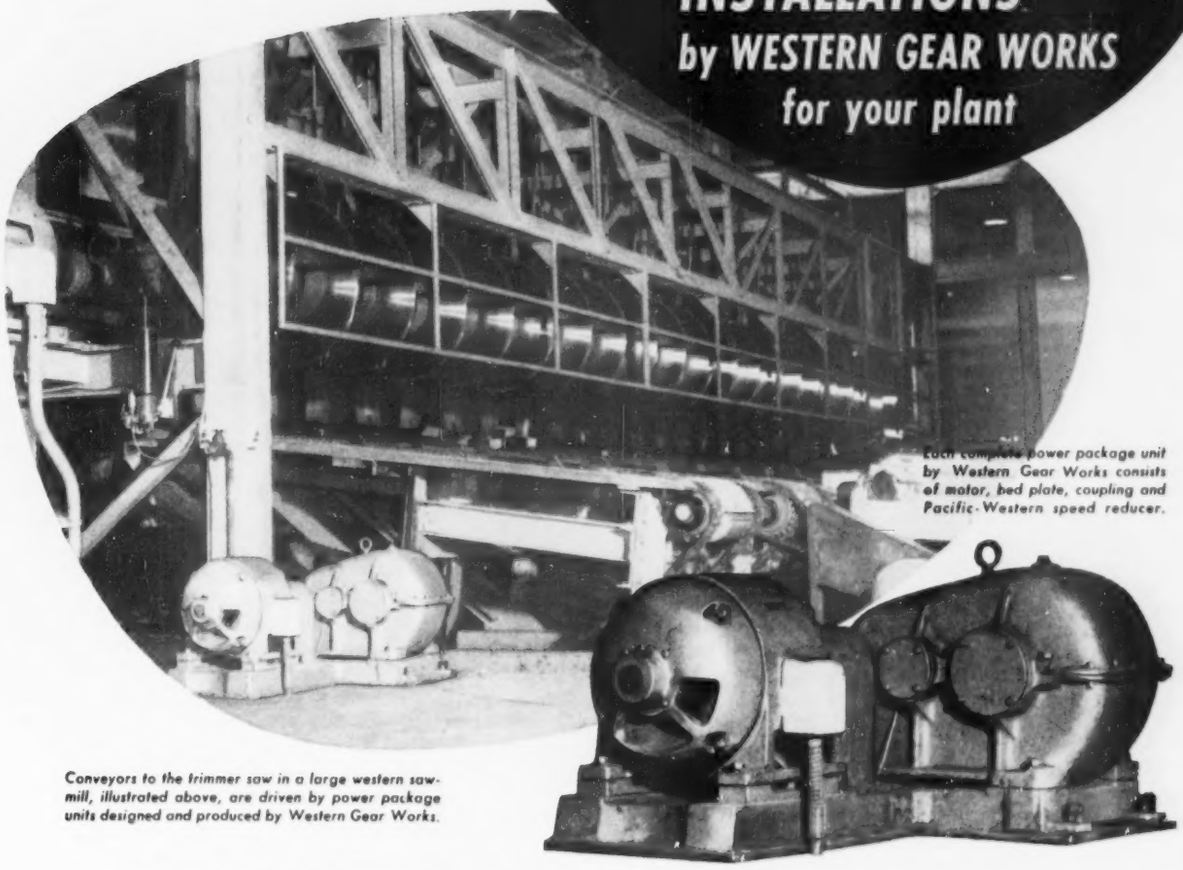
Export Dept.: The Carpenter Steel Co., Port Washington, N.Y. "CARSTEELCO"

Carpenter

STAINLESS TUBING & PIPE — Analysis · Tolerance · Finish — guaranteed on every shipment

You save 2 ways when you specify...

COMPLETE POWER PACKAGE INSTALLATIONS by WESTERN GEAR WORKS for your plant



Each complete power package unit by Western Gear Works consists of motor, bed plate, coupling and Pacific-Western speed reducer.

Conveyors to the trimmer saw in a large western sawmill, illustrated above, are driven by power package units designed and produced by Western Gear Works.

1 You save time by issuing one order to a single supplier for the complete power package unit for the job. There's no need for separate purchases of individual items with varying delivery dates from several suppliers. Single responsibility is assured when you call on Western Gear Works for your requirements.

2 You save installation worry because the entire power package unit has been carefully engineered by Western Gear Works to assure the most efficient service for your needs. With motor and reducer forming a complete package unit, no special tools or equipment are required for their alignment. Your complete Western Gear power package is ready for immediate hook-up to the driven unit without assembly of components.

For prompt assistance on your power transmission problems, call or write, at no obligation, your nearest Western Gear plant or representative.

5252

WESTERN GEAR WORKS

Manufacturers of **PACIFIC-WESTERN** Gear Products

Pacific Gear & Tool Works

Plants: Seattle, San Francisco, Belmont (S. F. Peninsula), Lynwood (Los Angeles County), Houston

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2600 E. Imperial Highway, Lynwood (Los Angeles County), California
1035 Folsom St., San Francisco 3, California
Belmont (San Francisco Peninsula), California
117 N. Palmer St., Houston, Texas

Representatives • 930 S. E. Oak St., Portland 14, Oregon
Room 212 Ross Bldg., Denver 2, Colorado
500 S. Ervay St., Dallas, Texas
Engineering & Machinery Ltd., 1366 W. Broadway, Vancouver, B. C.

SOUTHERN ASSOCIATION REVIEWS RECORD

TOP ROW—L. to R.: C. H. NIEDERHOF, West Va. P & P, elected new President of Southern Pulpwood Conservation Assn.; HOWARD S. GALLOWAY, Asst. Secy-Treas., International Paper Co., Mobile, Ala.; E. L. LOUGHRIDGE, Pulpwood dealer, Boyd, Fla.; LUD E. KING, Champion Paper, Canton, N. C.; H. A. MAAS, Southland Mills, Lufkin, Tex.; J. W. TUCKER, Brunswick (Ga.) P & P; R. E. LESLIE, International Springhill, La.; MIKE H. STALMUKE, International, Moss Point; J. H. JOHNSON, Chesapeake Corp., and J. B. JOHNSON, Camp Mfg. LOWER GROUP—First get-together for all of International Paper's Southern conservation foresters. They are: Front row, left to right: JAY KUTACK, Mississippi; JOE GARRISON, Georgia; RUSS S. ANDREWS, Mobile, conservation chief; PAUL HARPER, N. Carolina; AL HERRINGTON, Arkansas; and BOYD ARNOLD, Alabama. Back, left to right: H. M. ("SWEDE") ROLLER, Mobile, assistant chief; CHARLIE ROBERTSON, Louisiana; MITCHELL PARKER, Florida; EMIL MUELLER, Texas; and Joe HOGAN, S. Carolina.

Record attendance of pulpwood dealers, company and association foresters participated in a full scale review of Southern Pulpwood Conservation Association's work in annual convention Jan. 20-21 at Atlanta's Biltmore Hotel. Looking backwards, the organization's president, Earl Porter, recalled gloomy forebodings voiced when the association started; now yielding to optimistic views of success ahead. What's ahead: "suppressing fires, harvesting trees wisely, planting seedlings—telling about it."

Termed a turning point, the sessions swung from earlier characteristic meetings devoted to expositions of company programs and association objectives to panel discussions of working methods. The regional summer field meeting and tour of one company's forest land had been changed previously to area sessions that enlarged opportunities for attendance.

Reports of Sessions

Adoption of a new sampling method based upon a mathematically computed proportional table to result in accuracy in reporting types of cutting to within plus or minus one percent, if all member mills comply, was reported to a foresters' session by H. M. ("Swede") Roller, Jr., assistant conservation chief for International Paper Co.'s Southern Kraft Division. Also revealed were new standards sharply defining cutting classifications.

A panel on "How to tell your story" was moderated by Ralph A. Davis, Jr., SPCA, with Chas. W. Robertson (International Paper), Joe G. Burns (Hollingsworth & Whitney), J. Ray Orr (Champion Paper & Fibre) and George Walker (West Va. Pulp & Paper) participating. Mr. Walker read a paper by M. R. Fierson (West Va. Pulp & Paper).

"How to provide management service to land owners" had Howard J. Doyle, SPCA, as moderator with panel of Al Herrington

AT ATLANTA MEETING (L. to R.): HENRY J. MALSBERGER, re-named Gen. Mgr.-Forester of the Association; H. M. ROLLER, JR., I. P. Co., who presided over Foresters' session, and R. V. MILES, Gulf States Paper, elected Vice President.

(International Paper), D. V. Willett (Gulf States Paper), E. A. Hall (Container Corp.), and Ben L. Allen (Camp Mfg.).

Services performed by the Association during 1952 were recounted by Henry J. Malsberger, general manager forester, in impressive totals, including 580,000 leaflets distributed; 165,000 "Stop Woods Fires" bumper strips disbursed, the diorame trailer exhibited to over a million persons; 145 exhibits at county fairs reaching 860,000; showing of forestry movies (70 film prints) on 670 occasions to a total audience of 70,000; forestry camp operation; 1180 woodland demonstrations; management assistance to 4,000 owners of 1,169,000 acres.

Outstanding was tree-marking performed for 5,300 owners of 282,000 acres that yielded 782,000 cords averaging 2.8 cords per acre with 53 acres per owner. The stands were left in excellent condition. The industry planted 52.5 million seedlings on company land and furnished 21.5 million seedlings to landowners.

Cutting Practices

Observations made of cutting practices covering 9½ million cords taken from non-company lands totaled 5914 of which 12% clear cut with change of land use, 16% clear cut with no provision for future growth, 24% left in seed trees, 41% in partial, and 7% in salvage. These percentages reflected little change from 1951.

Earl Porter (I.P. Co.) and A. G. Curtis (Gaylord Container) were moderators for panels that discussed what the South is doing about its future supply of pulpwood from non-company owned lands. Members included S. K. Hudson (Container Corp.), C. H. Niederhof (West Va. P&P) Charlie Jones (Dixie Wood, Inc.) R. V. Miles, Jr. (Gulf States), Stanford Smith (Ga. Press Assn.) H. M. Roller, Jr. (I. P.), Frank Heyward (Gaylord Container), and Ralph A. Davis, Jr., James D. Nicholson, and Howard J. Doyle (all SPCA foresters).

Kirk Sutlive, Union Bag & Paper Corp., public relations chief, was banquet toastmaster.

Elected president for 1953 was C. H. Niederhof, West Virginia Pulp & Paper. R. V. Miles, Gulf States, was named vice president. Directors elected included:

Area 1: Lud E. King, Southern Advance; R. E. Leslie, International, Springhill, La.; H. A. Maas (chairman), Southland Paper.

Area 2: Joe Brewster, St. Regis, Pensacola, Fla.; R. V. Miles, Gulf States Paper; M. H. Stalmuke (chairman) International, Moss Point, Miss.

Area 3: J. W. Tucker, Jr., Brunswick Pulp & Paper; J. E. McCaffrey, International, Georgetown; N. R. Harding, Macon Kraft; S. K. Hudson, (chairman) Container Corp.

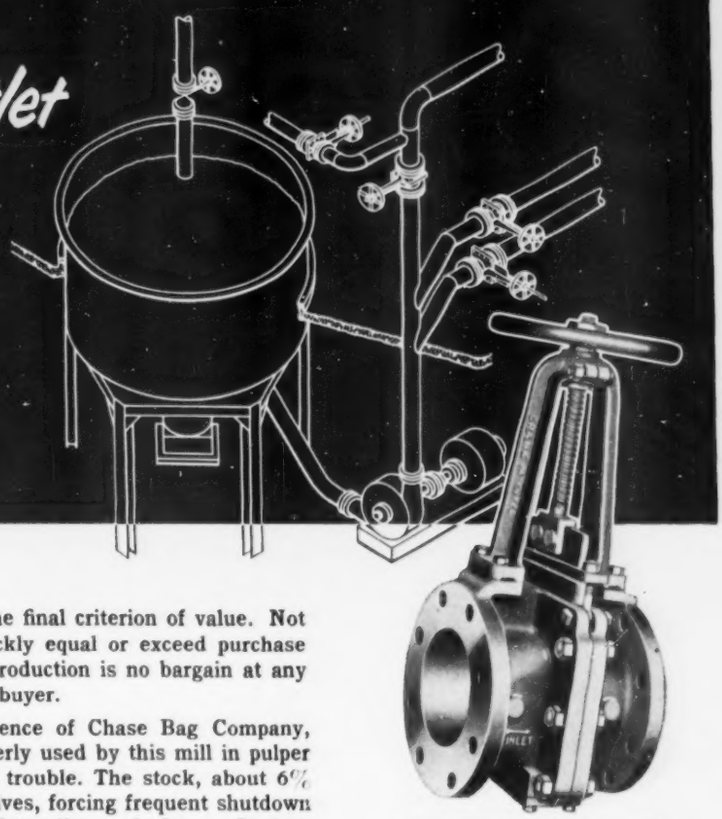
Area 4: J. E. Johnson, Camp Mfg. J. H. Johnson, Chesapeake Corp; J. B. Lattay, Riegel Woodlands; J. Frank Key, (chairman), The Mead Corp.

As past president, Mr. Porter serves as director at large.

It's not what you Pay for Valves . . . it's what they Cost you

on Pulper Outlet Lines for example

(A Case History)



What you pay for valves is not the final criterion of value. Not when maintenance costs can quickly equal or exceed purchase price. And a valve that hinders production is no bargain at any price . . . no attraction to a thrifty buyer.

A good example is the experience of Chase Bag Company, Chagrin Falls, Ohio. Valves formerly used by this mill in pulper outlet lines were giving constant trouble. The stock, about 6% consistency, would clog at the valves, forcing frequent shutdown of pulper for cleanout of lines. Naturally, stock flow to Jordans would stop.

Only by replacing with Crane Pulp Stock Valves was this costly maintenance problem and threat to production completely stopped. Installed more than 5 years, Crane valves have never forced a pulper shutdown.

Today, more than ever, you need greater assurance of dependability in piping materials. You get it in Crane Valves—the recognized standard of quality with thrifty buyers everywhere. Your big Crane Catalog offers complete selections for all needs. Your Crane Representative is always at your service.

Crane Pulp Stock Valves—with shearing action disc—are self-cleaning, non-clogging, easy to operate. See your Crane Catalog.

CRANE VALVES

Crane Co., *General Offices:* 836 S. Michigan Ave., Chicago 5, Illinois
Branches and Wholesalers Serving All Industrial Areas.

VALVES • FITTINGS • PIPE • PLUMBING • HEATING

CONSISTENT EXPANSION

Puget Sound, pioneer pulp mill in the Pacific Northwest, has been expanding constantly since World War II. New hydraulic barking equipment, a new industrial alcohol plant also producing Lignosite, a new paper board mill unit and, now, new facilities for the production of bleached [illegible] Puget Sound [illegible] the oldest and newest pulp mill in the West.

PUGET SOUND

PULP AND TIMBER COMPANY

BELLINGHAM • WASHINGTON

COLORADO DEAL OFF

U. S. MAY OFFER SMALL TIMBER UNITS

The Columbine Pulp & Paper Co. deal in Colorado is off.

In reply to an inquiry from PULP & PAPER, U. S. Forest Service headquarters in Colorado advises that the company has forfeited its option and down payment and all claims to a pulp timber allotment of about 4,500,000 cords in White River National Forest and adjacent national forests.

A 30-year contract for utilization of this timber, more than three-fourths of it beetle-killed spruce, was sold in 1950 at a U.S.F.S. auction sale in Washington, D.C., to the highest bidder of two competing groups—the Columbine Development Co.

Last year Columbine Development was dissolved and a successor company, Columbine Pulp & Paper Co. was organized with new personalities at the head of it. Besides the down payment of $25,000, many thousands more had been invested principally by Coloradoans in all walks of life and were spent on building site, water rights and supply, test piling and extensive engineering.

The new company was given an extension of time from Sept. 30, 1952 to Dec. 31, 1952, for submission of evidence of $10,000,000 minimum assets for the building of a pulp mill at Glenwood Springs, Colo.

Failing to produce this evidence by Dec. 31, the Colorado group was denied any further extension of time and the timber has now reverted to ownership of the U. S. Forest Service.

Allotment No Longer For Sale

In reply to inquiry by PULP & PAPER, Acting Regional Forester A. L. Nelson of the Rocky Mountain Region, declared:

"The pulpwood timber which was included in the original offering is *not* available for resale.

"We are currently engaged in a review of our inventory data to get the best estimate we can of the total material which is currently available for pulpwood operations. We plan to renew our efforts to establish a pulp mill on the west slopes of Colorado but we have not, as yet, reached any specific details concerning the scope of the offering or the requirements which may be established in connection with a new sale."

Says Epidemic is Halted

As regards the spreading of the infestation in Colorado, Mr. Nelson, acting chief in place of Regional Forester Donald E. Clark, who is ill, said:

"All indications are that the epidemic spruce beetle attacks have been arrested. Barring unforeseen developments, we expect that our control program in 1953 will be on a rather small scale and will consist of what might be termed a mopping-up operation to eliminate small pockets of heavy infestation which we expect will develop next summer. We are happy to say that it looks like we are over the hump as far as large epidemic losses are concerned."

Of course, it is agreed the vast areas of Engelmans spruce now already dead, must be salvaged in a few years to be useable in pulp manufacturing, according to both Forest Service and industry technicians. Some progress has been made in utilizing it, as Mr. Nelson advised that about 70,000 cords have been shipped to Consolidated Water Power & Paper Co., Wisconsin Rapids, Wis. Shipments of pulpwood are still being made to the Rapids sulfite and semi-chemical mill.

"We plan to continue to make dead pulpwood available to the Lake States and other areas where demand may develop," said Mr. Nelson. "This policy will be continued until at least the establishment of a pulp plant in Colorado is assured. Even with the establishment of such a plant we feel sure that a surplus of dead spruce will be available for shipment to other areas."

Promotional Phase Hurt Deal

Private interests who have had dealings with the Service in Colorado expect that it may now parcel out smaller areas for any users, or several users, instead of trying to withhold one big unit for a mill there.

One of the criticisms most frequently heard by PULP & PAPER of the Colorado negotiations of the past few years was that they got into a highly speculative realm. These critics are among big paper companies and potential *operators* of a mill in Colorado, who asserted that they quickly lost interest when they found out how the price had been pushed upward in bidding, and especially how much had been spent in promotion and preliminaries, all of which it was expected that an actual mill builder and owner would have to absorb.

The timber was sold to a group that definitely intended to re-sell to a paper company or a group that would actually own and operate the mill. But, in fairness, it also should be pointed out that it was most difficult to interest builders because of the high altitude of the timber—most of it at 8,000 to 11,000 ft. in snow country and rolling plateaus.

The successor company, Columbine Pulp & Paper, had inherited considerable handicaps in all these respects, the industry observers said, and this apparently was too much for them to handle in trying to interest a builder and operator. Another blow to their hopes was the adequacy of market pulp supply in recent mouths.

Donald Bromfield, real estate man of Denver; H. E. Holden, of the Loveland, Colo., *Reporter-Herald*, and Charles Buxton, business manager of the Denver *Post* were directors of the new company. Original promoter of the Colorado mill scheme, who dreamed of a newsprint supply made on the Colorado River, for Rocky Mountain area papers, was Preston Walker, of the Grand Junction, Colo., *Sentinel*. He failed, however, to interest newspapers as investors and the project became a promotional venture.

Forest Service Policy

To clarify persistent reports of the plans of the U.S. Forest Service for acquisition of additional lands for national forests, PULP & PAPER asked Richard E. McArdle, Chief of the Service, to explain the acquisition program. (One fourth of U.S. forests are publicly owned by U.S. or states). The reply of Mr. McArdle is as follows:

"The Forest Service has in the past made studies of the need for public acquisition of forest and watershed lands. The latest of these was made some years before the war and indicated that some additional areas should eventually be brought into public ownership. This study was made in the light of then prevailing conditions, which, have changed considerably and very likely now is out of date in many respects.

"Our basic authority for the purchase of lands for national forest purposes is the Weeks law of March 1, 1911, as amended, which authorized purchases, in watersheds to promote streamflow regulation or timber production. There are supplemental authorizations limited to a few specific national forests.

"Appropriations under the Weeks law have been quite limited for the last several years; that for the current fiscal year is only $75,000. Obviously, this permits no 'vast' program of purchase. It appears probable that the acquisition program during the next several years will be relatively small. It is expected to consist largely of acquiring such key tracts within established national forests as may be offered at mutually satisfactory prices and which are of value in promoting more effective management and conservation."

Meeting in October

Joint meeting of Southern and Southeastern Divisions, American Pulp and Paper Mill Superintendents Ass'n, will be effected at the Edgewater Gulf Hotel, Edgewater Park, on the Mississippi gulf coast, Oct. 28-30, according to Tom Coldeway, St. Joe Paper Co., Southern Division chairman.

OUTLOOK FOR CHEMICAL CELLULOSE

The long term outlook for chemical cellulose for rayon, cellophane, etc., is very good. And the diversification of Rayonier outlets into various fields that include plastics, acetates, tire cord, textiles of all kinds and cellophanes have strengthened that company.

These were two salient points which Clyde B. Morgan, president of Rayonier Inc., stressed in an interview with PULP & PAPER. His comments provided the key to Rayonier expansion, particularly the new mill being built in Jesup, Ga., which will add about 87,000 tons by next January to Rayonier's current production of 435,000 tons of chemical cellulose.

He saw no reason why new production heights could not be reached in future years, particularly with the promising outlook for high grade pulps in world markets. A strong export sales department is a new development in Rayonier with several agents appointed in foreign countries.

Mr. Morgan said the 1952 demand for dissolving pulps was almost at the same level as 1951. In view of the fact that every Rayonier customer has indicated expansion plans, both here and abroad, the outlook for the future is bright, he said. Net sales for the company for 1952 were $78,263,097 against $83,773,604 for 1951, and net earnings after taxes were $10,985,000 or $4.90 per share of common compared to $11,024,000 or $4.92 per share for 1951.

Mr. Morgan and James T. Sheehy, executive vice president and new member of Rayonier's board of directors, pointed to a promising future for cellulose chemistry and the high grade dissolving pulps of which the company is a leading manufacturer. It was pointed out that the consumption of rayon in this country is about 7 lbs. per capita as compared with .8 lbs. per capita for the rest of the world. Increase of this outside consumption by just 1 lb. per capita would raise pulp consumption by over one million tons, and there is evidence this increase is coming, they said.

Some 30% of Rayonier production now reaches the apparel field, 20% goes into tire cord, and 20% into cellophane manufacture.

For the new mill at Jesup, Ga., and the mill at Fernandina, Fla., the company has been adding substantially to its woodlands so that approximately 430,000 acres are owned in the area or held under long-term lease. It is estimated that about 600,000 acres would be needed to make the company self-sustaining in the Southeast. The new plant will use both softwood and hardwood, to make for more complete utilization of the wood production.

Whereas Rayonier in its earlier years preferred to operate at a rate to meet only about the minimum requirements of its customers, Mr. Morgan and Mr. Sheehy indicated that diversifications of outlets has permitted more expansion and a closer tie-in to maximum needs of many customers.

CLYDE B. MORGAN (left), President, Rayonier, Inc., who foresees longterm growth of chemical cellulose markets, particularly abroad. JAMES T. SHEEHY (right), Executive Vice President, who has been elected to Rayonier Board of Directors. From Seattle and the University of Washington when he joined Rayonier in 1933, at Hoquiam, Wash., as pulp tester, he worked up through plant management, direction of engineering, etc. to his present duties directing production, research, finance, sales, timber and other operations. He's 42.

ALBERT E. PONTER, Jr., appointed new Export Sales Manager for Rayonier Inc. He was with Belgian branch of Pfizer International Corp. Is native of New Jersey, graduate of Lehigh.

2 Cent Wage Boost For All I. P. Mills

International Paper Co. and AFL unions have concluded wage negotiations resulting in a general 2 cent pay increase for 11,000 employes in nine Southern Kraft Div. mills in the South and 4,000 employes in six mills of the Northern (or Book and Bond) Div. in Maine, New York and Pennsylvania.

In the South, the negotiations at Mobile, Ala., also resulted in a shift premium of 2 cents per hr. for second and third shifts and an increase from $20 to $26 a week in maximum sick benefits at no extra cost to employes. On "shutdown" work it was agreed to rotate employes to equalize day and night work.

Other provisions for the North, settled upon at Glens Falls, N.Y., include extension of vacations to employes with 2 to 3 years service, increased retirement allowance from $100 to $125 per month for 15 years service and reductions for others. The 2-cent increase gives Niagara Falls a base of $1.45 and other mills, $1.40.

Will Expand Kraft Mill At Port Alberni, B. C.

MacMillan & Bloedel, Ltd. contemplates expansion at Port Alberni, although no definite decision has yet been made, according to H. R. MacMillan, chairman.

"Port Alberni looks to us to be a longer term, cheaper source of pulpwood from logging and mill waste than Harmac, where the company is now doubling capacity of its bleached sulfate mill, Mr. MacMillan stated.

CAUSE OF LONGVIEW TANK EXPLOSION

For the benefit and knowledge of the chemical pulp industry, Robert S. Wertheimer, vice president and resident manager of Longview Fibre Co., has issued a report to PULP & PAPER on the digester blow tank explosion which occurred at that mill last Jan. 19, at 3:50 p.m.

After an extensive investigation, he said, it has been determined that the explosion did *not* result from ignition of an explosive mixture of vapors. It would be described as due to some type of "man-failure."

The 20-ton capacity tank—65 ft. high, 23 ft. diameter—was of conventional design and construction, only recently installed alongside the kraft pulp mill. The concussion ripped off and hurled its conical top high in the sky. It dropped in a graveled area 100 yards away after sailing over the top of the plant. The hulk of ½ in. thick metal plates twisted steamlines and ripped a water main in its descent. Legs of the tank buckled, dropping it at an angle. Seams split open spilling pulp and liquor. Concussion smashed an adjacent glass brick wall, caved in another nearby tank, broke many windows and scattered debris.

There were two fatalities: Tom Long, millwright, who was helping a crew install a new digester high up in the 110-ft. building. It had no connection with the tank. And B. E. McDaniel, a welder, working on the mill roof. Four others were injured. Mr. Wertheimer said:

"We have now determined that the explosion occurred, when—due to error—an abnormal pressure, probably of about 80 p.s.i., existed in the blow tank at a time when it was not in normal operation and the connection between the blow tank and the atmosphere was temporarily closed, to permit work on connected equipment. The abnormal pressure resulted from the entrance into the blow tank of gases and steam from digesters."

In rebuilding the tank, he said additional safeguards will be provided that will make such an explosion impossible under even abnormal conditions.

The mill, which makes 700 tons of primary kraft pulp as well as paper, was back to 60% production six hours after the blast. It was almost back to normal production last month, as it was possible to put back into operation diffusers which had been abandoned about six months earlier when the new system was installed. Parts of the new blow system were hot stock refiners and rotary vacuum washers which had given a new boost to production.

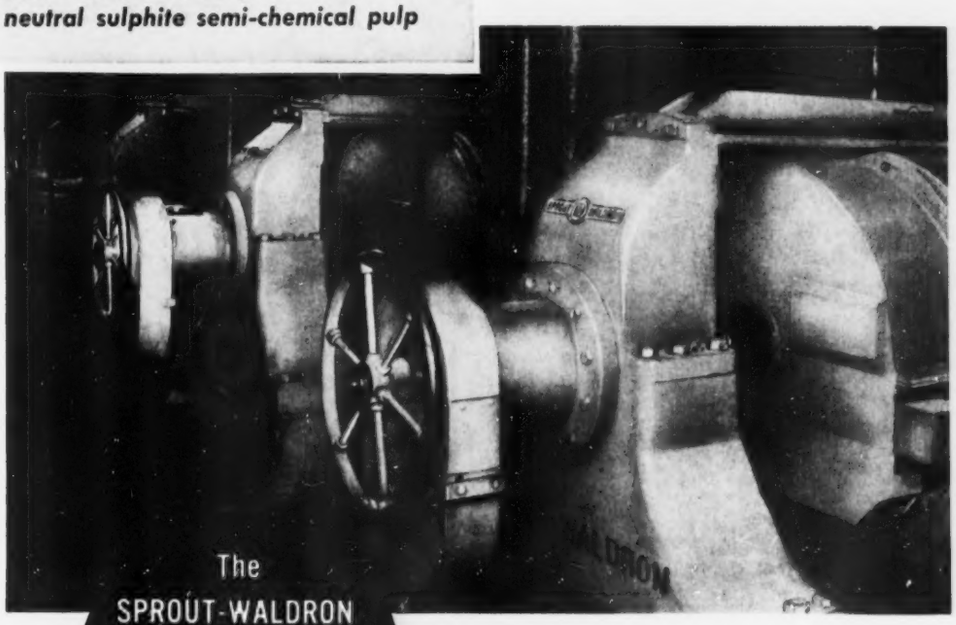
semi-chemical

To solve pulping problems *economically...*

Groveton Papers Company uses Sprout-Waldron Refiners

The first semi-chemical pulp mill in New England

uses four Sprout-Waldron 450 h.p. 36-2 Refiners to produce neutral sulphite semi-chemical pulp



The SPROUT-WALDRON refiner is the leading producer of semichemical pulp

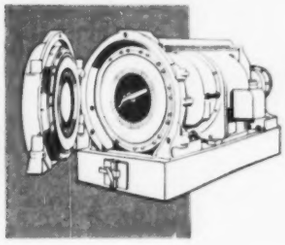
high pulp quality

rugged construction

high capacity

low maintenance

flexibility of operation



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32 Logan Street, Muncy, Pennsylvania

SPROUT-WALDRON

PULP REFINERS

268-A

News and Notes from ▣ ▣ ▣

EQUIPMENT AND SUPPLY COMPANIES

Sales Executives Join Huyck Symposium

Something new in sales techniques and symposiums—F. C. Huyck & Sons invited "sales managers of *other* companies which have shown outstanding performance" to their own sales meeting Feb. 3-4 at the Huyck mill in Rensselaer, N.Y. Grenville R. Holden, Huyck president, moderates a 2-day symposium with these participants:

Milt Bixby, director of sales, Hercules Powder; G. W. Knapp, manager of Paper and Textile Section, General Electric; William Metcalfe, secretary, J. O. Ross Engineering; Prosper Neuman, manager of technical service, Hercules Powder; D. F. Putnam, manager of sales of Lumber & Paper Industries Activities, General Electric; and Fred Soderberg, manager; Industrial Division, General Dyestuff.

CHAIN BELT CO., 1600 West Bruce, Milwaukee 1, Wis., has available on request copies of a new illustrated 48 page booklet on *REX* steel detachable chains. It discusses manufacture methods, quality tests, specifications, applications, etc.

BLACK-CLAWSON's Messenger devoted recent issue to research with accolades to *OTTO W. HEIN*, director of all research and development as well as v.p. and general manager of Shartle Division; *STEPHEN A. STAEGE*, research consultant as well as sales and consulting engineer in the company organization; *GEO. M. PENNOCK*, chief development engineer—paper machines; *JOE BAXTER JR.*, design and development engineer, with three project engineers under him, and *GEO. B. NICHOLSON*, director of laboratories, heading up a small staff of a dozen persons in various laboratory activities.

BABCOCK & WILCOX CO. has purchased a tract south of Wilmington, N.C., on which the company plans to erect a new $2,000,000 plant to build boilers and related equipment, according to C. H. Gay, vice president of the company.

LINK-BELT SPEEDER CORP., Cedar Rapids, Ia., announces publication of a colorful 24-page catalog describing its 51 Series shovel-cranes. The fully illustrated catalog No. 2428 covers Link-Belt Speeder's complete line of ½ yard shovel-cranes including the firm's crawler-mounted LS-51, the truck-mounted HC-51 and the wheel-mounted MS-51 models. Photographs show the equipment under actual operating conditions. Included in the editorial material is comprehensive data covering the upper machinery, crawler, truck, and wheel-mounted lower mechanisms for each model. The catalog is available through Link-Belt Speeder distributors or through the Link-Belt Speeder Advertising Department, 307 North Michigan Ave., Chicago 1, Ill.

HANNA ENGINEERING WORKS, Chicago, announces two new sales representatives to handle Hanna air and hydraulic cylinders and control valves. Sales in Minnesota and northwestern Wisconsin, will be by Haldeman-Langford, 2580 University Ave., St. Paul 4; in central and southern Indiana and northern Kentucky by Scott Equipment & Engineering Co., 54 West 30th St., Indianapolis 8.

THE BRISTOL CO. has a new bulletin describing its full line of recording and indicating electric tachometers. The instruments described include models for measuring speed of rotation or travel, processing time, speed ratios, sum or difference of speeds, and average of speeds. The bulletins are available from The Bristol Co., Waterbury 20, Conn.

ALLIS-CHALMERS broad line of centrifugal pumps applicable to most industries is highlighted in a new "Handy Guide to Selection of Centrifugal Pumps." In addition to covering general purpose, double suction, multi-stage, special purpose, marine and mixed and axial flow pumps, this bulletin has a head-capacity table for single stage, double suction Allis-Chalmers pumps. Copies of "Handy Guide to Selection of Centrifugal Pumps," 52C6059J is available from Allis-Chalmers, 995 S. 70th St., Milwaukee, Wis.

FAIRBANKS, MORSE & CO., Chicago manufacturers, announce recent changes in personnel: *W. E. WATSON*, named to Assistant to Manager of manufacturing, headquarters in Chicago; *PAUL R. FLOOD*, has been transferred to Pomona, Calif. and appointed general manager of the company's Pomona Pump Works.

BUILDERS-PROVIDENCE, INC., R. I., announces BIF Industries has established a Service Center in Seattle, Washington, that is well equipped to handle all service problems. Territory covered by the Seattle office includes States of Oregon, Washington and Western Idaho, Provinces of British Columbia and Alberta in Canada. *L. W. ARMSTRONG*, is in charge of Service. The Seattle Center is at 913 Artic Building, Seattle 4.

EARL PAINT CORP. announces new formulation resulting in an improved neoprene-based coating under the trade name "Erkoprene 900." It is a self-vulcanizing, neoprene-base synthetic rubber coating of high concentration, making possible a greater thickness per application, as much as .02 inches per brush coat. It is described as ideal for lining tanks handling acids and other corrosive chemicals and has all the physical properties of vulcanized rubber, such as toughness, resistance to abrasion, elasticity, strength and chemical resistance. It is inert to all acids, with exception of the highly oxidizing ones such as nitric and chromic. Further information may be obtained from Earl Paint Corp., 240 Genesee St., Utica, N.Y. They have also published a new 24-page catalog listing a complete line of coatings for industrial maintenance, including corrosion-resisting, insulating, waterproofing and restoration materials.

PANDIA, INC., New York City, is celebrating its 20th anniversary. Originally founded by R. D. Kehoe in 1932 as Paper and Industrial Appliances, Inc., the name was changed to Pandia, Inc. this year. Present officers are: A. Whittemore, president; L. G. Durant, vice president; and R. G. Goodwin, director of sales engineering.

SPROUT, WALDDON & COMPANY, INC. has been issuing a series of bulletins entitled "Better Fibers." At last count 11 issues have been published, all featuring up-to-the-minute information on semi-chemical pulping and semi-chemical pulping installations and one featuring hardboard production. During this period, Sprout-Waldron has built many 36-2 refiners for semichemical pulp mills. A survey of Sprout-Waldron refiners used in semichemical pulping shows that 52 refiners having 19,100 horsepower are in 13 U. S. semichemical pulp mills, including units about to start up. When refiners now on their production schedule go into operation, 295,600 tons more will be added to annual production.

SAMUEL M. LANGSTON CO. announced they have completed purchase of an adjoining property comprising a one story brick building with an area of 42 000 square feet, plus 48,000 square feet of land adjacent to the building. Building will be used to increase production of their regular line of equipment after some alterations are made and new machine tools are installed, Bryant W. Langston, president, said.

CAMERON MACHINE CO., Brooklyn, N.Y., has begun erection of new plant in Randolph Township, N.J., to supplement present facilities according to Palmer J. Lathrop, president. The new plant will be a one-story building with 42,000 square feet. There will be one high bay area with ten ton cranes to handle heavy machinery being built. Building was designed to handle the growing need for facilities for slitting and roll winding machinery.

Brown Division Appointment

R. Randall Irwin has been appointed manager of personnel and industrial relations for the Brown Instruments Division of Minneapolis-Honeywell Regulator Co., Philadelphia, it was announced recently by Henry F. Dever, president.

Irwin has been with Richardson, Bellows, Henry & Co., New York industrial consultants. From 1946 to 1951, he was industrial relations director for the American Sugar Refining Co., and for 13 years for Lockheed Aircraft.

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*Few men interested in water technology and practices have time or opportunity to read all the published articles and technical papers which deal with the industrial aspects of water treatment and use. To help overcome this difficulty, Nalco Water Techs will provide a listing of carefully selected articles and papers which are reprinted by Nalco in pamphlet form for free distribution upon request by interested readers. Your requests will involve no obligation whatever . . . This addition to Nalco advertising is being undertaken solely as a further Nalco contribution to the better understanding and use of modern water technology.
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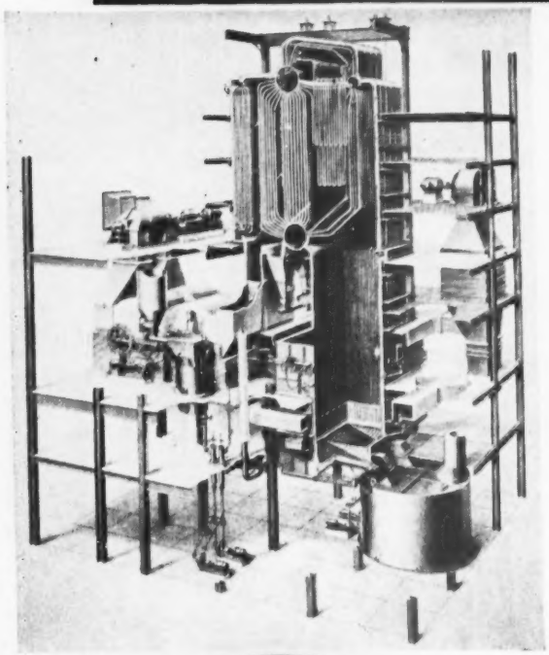
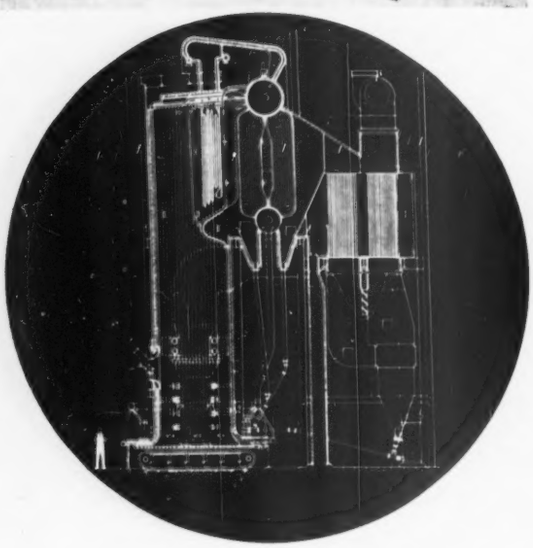


C-E RECOVERY UNITS with an aggregate capacity of well over 50,000,000 lbs. of dry solids per 24 hours are now in service, under construction or on order. They vary in capacity up to 350 tons and for operating steam pressures up to 875 psi with temperatures to 825 F.

C-E Recovery Units are in service in many of the best known mills throughout the United States and Canada; other installations are in Europe and Latin America. Their repeat order record is exceptional. Three large companies have purchased C-E Recovery Units on four different occasions, two companies have ordered three times and eight companies have ordered twice. The reliability, efficiency and operating economy they anticipated from their first C-E Units became the reality upon which future orders were predicated.



C-E BARK BURNING UNITS bring to the pulp and paper industry a revolutionary bark burning method – proved in service – that will soon be paying impressive dividends to leading mills all over the country. Its primary feature is turbulent-suspension burning. Bark or hogged wood is fed into the furnace by specially designed spreader units located at a considerable distance above grate level. Preheated air, introduced through nozzles at various furnace levels, assures extreme turbulence and, therefore, rapid and efficient combustion. Most of the bark burns in suspension – the balance burns quickly and evenly on the stoker grate.

Reports from the initial installation – now in service for more than a year – show that overall savings have been very substantial, that performance has been excellent and that availability is exceptionally high – actually better than 99 per cent.

OTHER C-E PRODUCTS for the pulp and paper industry include all types of boilers and fuel burning equipment and C-E Flash Drying Equipment which has been very successfully applied to existing lime burning operations to increase capacity and efficiency. B-643

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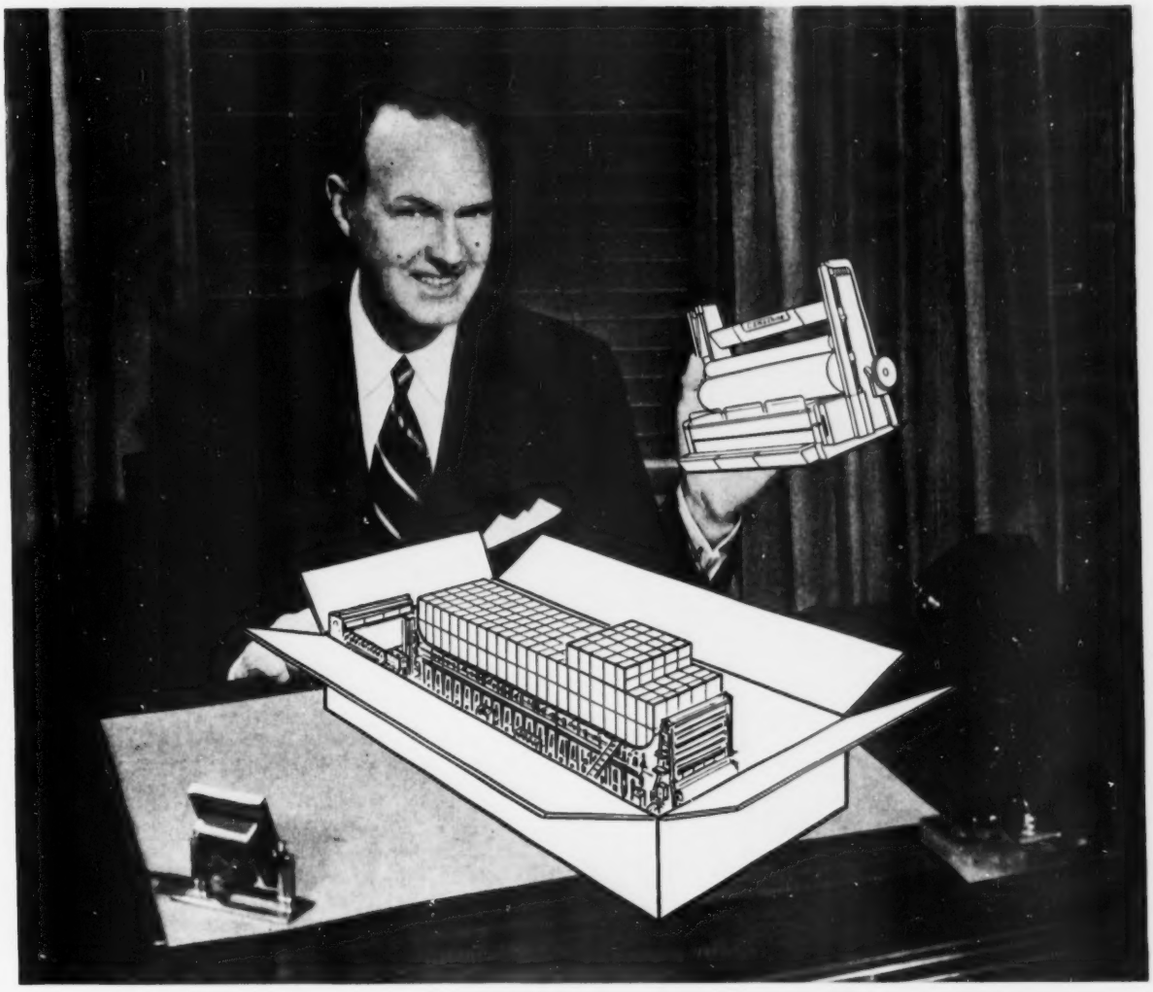
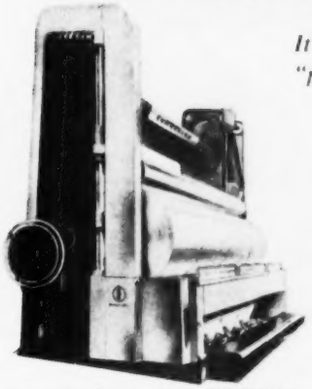


Camachines improve any mill "package"



Investigate Cameron's new IMPERIAL *ultra modern, high-speed mill-type winders, featuring hydraulic controls.*

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Camachines may be purchased with, or to serve the winding end of any paper machine of any make. Your paper machine manufacturer can supply a Camachine *easier than* a winder of his own make.

The cost of a mill type winder represents only a small fraction of the total cost of a paper mill and its resources, but that winder is the vital *last* link in the long chain of processes required for papermaking. The performance of the winder, and its reliability are a measure of the efficiency of the entire mill. That's why more than half of the mills in the United States and Canada are Camachine-equipped for top-quality winding. You are invited to consult Camachine engineers for a qualified engineering recommendation on the right equipment to meet your requirements.

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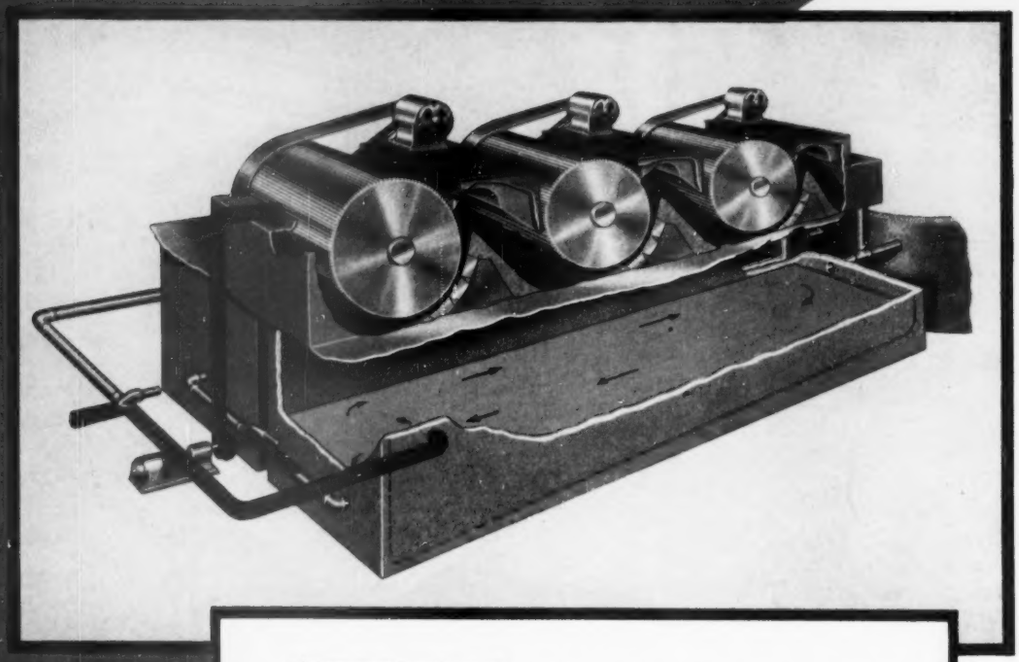
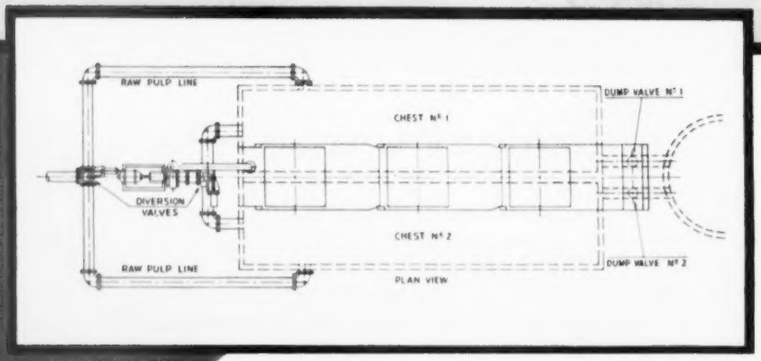
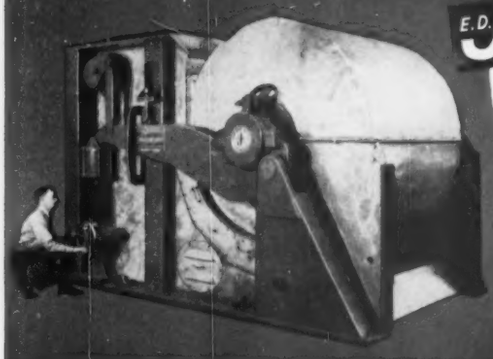


LEGEND

Raw stock is admitted to Chest #1. Diversion valves, controlled by liquid level elements, automatically shut raw stock line, circulate stock from Chest #1 through Multi-Beater, and into Chest #2; then again through Multi-Beater back into Chest #1, repeating cycle as required.

On last pass, refined batch is automatically diverted to beaten stock chest at the same time the next batch of raw stock is being admitted to whichever of the two chests is empty, and new cycle begins without pause.





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This easy-to-install "packaged" Beating Unit is the heart of the *Continu-flo* system. • Its pre-assembled construction means lower installation cost — no assembly in the mill. • Its proved mechanical design embodies the best features of the famous Jones-Bertrams Patent Beaters — produces better quality stock at lowest cost per unit of refining capacity. • And its integral motor support saves floor space. Available for either tub or multi-beater installation.

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Double-chest Batching System

Here's the answer to the problem of maximum refining quality at minimum refining cost. The only continuous batching system that guarantees full automatic control, Jones *Continu-flo* double-chest batching with Jones Beating Units offers you

Batch-refining quality with the tonnage and economy of continuous operation

Positive uniform treatment of all stock, with readily reproducible results

Greatest refining capacity and lowest operating cost per ton of any type of beating or refining system.

And no shutdowns for dumping! — because once the Micro-flex Control is set for the required number of passes, operation is continuous and the discharge of refined stock and admission of raw stock is automatic and simultaneous.

Ask your Jones representative or write us direct for details and drawings of this latest Jones development.

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BUILDERS OF QUALITY STOCK PREPARATION MACHINERY

HIGHLIGHTS OF CANADIAN MEETING

Plans to marshal Canadian universities and governmental and other research institutions in an attack on fundamental research problems were discussed at a special session during the 39th annual meeting of the Technical Section, Canadian Pulp and Paper Association in Montreal, Jan. 28-30.

Already renowned for the accomplishments of its Technical Section, the industry's research leaders met with educators and other research leaders to develop plans whereby the Canadian industry might finance basic research, and interest students in taking post-graduate work that would bear on these problems. Most of the Canadian universities were represented at the session.

Dr. W. Gallay, research director of E. B. Eddy Co., was chairman of the discussion. He said the industry had been backward in establishing scientific research on its problems and is now interested in financing the research it wants—perhaps through salaries, scholarships or equipment at qualified institutions. Dr. W. H. Rapson, professor of cellulose industries at the University of Toronto, told PULP & PAPER that while most of the Canadian universities would be interested in handling research problems presented to them, few of the institutions have either the equipment or the manpower to handle them at present.

One of the principal problems of the Technical Section's Fundamental Research Committee will be, therefore, developing financing and setting up the program so there will be no overlapping of activity at the schools.

In its report to the convention, the Committee suggested 20 basic problems which might be attacked to the advantage of the pulp and paper industry. These ranged from methods of analysis of wood and pulp; the action of microorganisms on lignocellulose and lignin derivatives; a study of the carbohydrates in Canadian pulpwoods; through pulping, papermaking and fiber studies. Five basic problems were listed for investigation under wood chemistry, composition and morphology of wood, two under cellulose and carbohydrate chemistry; six under the non-carbohydrate portion of the wood; and seven under pulping.

THREE INDUSTRY LEADERS at the CPPA meeting in Montreal (l to r): PERCY M. FOX, president, St. Lawrence Corp., Ltd., and new chairman of the executive board, CPPA; SYDNEY FERGUSON, chairman of the board, Mead Corp., and president of APPA; and R. M. FOWLER, president of CPPA.

First Stadler Memorial Lecture

Feature of the CPPA meeting was the presentation of the first annual Stadler Memorial Lecture by P. R. Sandwell, president, Sandwell and Co. Ltd., Vancouver, B.C., to commemorate the late John Stadler. Outstanding Canadian technical men will be invited each year to present these lectures. "Papermaking in the Second Industrial Revolution" was the subject chosen by Mr. Sandwell for the first lecture.

Mr. Sandwell proposed that the type of paper mill required for the future is one consisting of a collection of light continuous and automatic equipment designed for outdoor operation; arranged compactly; and controlled from control stations connected together for quick communication. He said that progress of the industry during the past years has been maintained by a resort to size, and that in respect to raw materials, sources of energy, finance and marketing the new $50,000,000 mills of contemporary design are by their very size opposed to what is needed.

In his summation Mr. Sandwell said, in part: "In large measure the paper industry has achieved the objectives of providing small increments of additional capacity at relatively low capital cost by 'speeding up.' This process, in itself, is admirable because it tends to exploit unused capacity and is, in a sense, a program of conservation not far removed from that advocated by John Stadler. It does not, however, solve the problem where no mills now exist. It will not solve the problem of replacing mills in the future out of depreciation reserves which are based on original cost. While the question of depreciation reserves may be settled for one section of the community by revised taxation policies which would shift the burden to other sections of the community, the only real solution depends upon technological advance, in which the industry lags behind.

"Much has been said in recent years about the paper industry's lack of progress being due to insufficient expenditure upon research and development. In the sense that progress depends upon an accumulation of knowledge this might be true, but it is well to remember that such inventions as the Fourdrinier machine and groundwood pulp, the two greatest forward steps in modern papermaking, were conceived by a frustrated personnel officer and a weaver. We still need 'the ultimately fruitful notion that is born in the mind of one man, able to unravel a complex of ideas which is beyond the power of his contemporaries.' Such a man is sorely needed by the industry today."

Deaerating by Vortrap

Among technical papers delivered at the Canadian meeting was one by Horace Freeman and John D. Boadway, of Consolidated Paper Corp. Ltd., on new methods for conditioning pulp stock. The paper covered the experience of the men with the Vortrap, a vortex-type separator and classifier manufactured by Nichols Engineering & Research Corp., in the simultaneous removal of gas and dirt from pulp stock. Through a redesign of the Vortrap, Mr. Freeman and Mr. Boadway found that by increasing the fluid velocity within the separating tube a vacuous core was produced which caused displacement of gases by centrifugal force allowing their removal by vacuum pulp.

In the new Consolidated Vortrap, pulp stock is forced into it through a nozzle converting pressure energy into velocity. The nozzle comes into the Vortrap tube at a tangent, causing the stock to take a spiral path along its wall. The centrifugal force of the high velocity developed carries the dirt to the walls and spirally to the bottom of the tube where it is discharged through an outlet at the side. The clean stock is turned up at the bottom of the tube by a curved taper, and spirals upward in a smaller radius around a vacuous core in the center of the Vortrap. Deaeration occurs at this point as bubbles of air in the upward moving stock move into the core, from which it is removed by a bottom pipe connected to a vacuum pump. Purified stock continues through an outlet at the top of the Vortrap.

Canadian Industry Grows

In his annual report to the Association,

H. C. LEE, International Paper Co., retires as Chairman of the Technical Section of CPPA; ROBERT L. FRASER, Abitibi Power and Paper Co., Ltd., Chairman; P. R. SANDWELL, president, Sandwell & Co., gave the first annual John Stadler Memorial Lecture at the CPPA meetings; JOHN EYTON, electrical engineer, Abitibi Power Paper Co., who won the R. L. Weldon bronze medal for outstanding work as chairman of the Section's electrical engineering committee; and J. L. HORTON, chief chemist, Diamond Match Co., Ogdensburg, N. Y., whose paper on the preparation of sulfite pulp using an ammonia base cooking liquor won the C. Howard Smith Gold Medal.

NABISCO

Crackers came in barrels . . . fifty years ago. The barrels made useful seats in country stores, too. But the crackers didn't keep fresh and the storekeepers took losses on the stale merchandise they couldn't sell.

So the National Biscuit Company made a paper package for their crackers. It kept all the crackers fresh until eaten and Uneeda Biscuit became the first cracker to be packaged and sold nationally under a brand name. Nowadays, almost every bulk food you can think of is packaged in paper and marketed on a nationwide basis.

THE END OF THE CRACKER BARREL

. . . THE BEGINNING OF A NEW ERA

In the scientific preparation of paper for its limitless number of uses, Huyck Felts play an important part. We are proud of the confidence the paper-making industry has in our product. We take this confidence as a challenge in our own forward-looking development program.

KENWOOD TEXTILE PRODUCTS

HUYCK FELTS

F. C. HUYCK & SONS • ESTABLISHED 1870 • RENSSELAER, NEW YORK

Pacific Coast Representative: Pacific Coast Supply Co., Public Service Building, Portland, Ore., 343 Sansome St., San Francisco, Calif.

R. M. Fowler, CPPA's president, sketched the continued growth of the industry. He said: "In the years 1946 to 1952 about $600 millions went into plant construction, machinery and equipment, added to an industry capitalized at about $750 millions in 1945. In addition, its total repair and maintenance bill for the seven-year period was more than $360 millions."

Mr. Fowler predicted that investment in the Canadian industry in 1953 would reach another $80 to $100 millions—this in spite of increased manufacturing, labor and tax costs.

Regarding government and industry, Mr. Fowler said there seemed to be a mounting tendency for government to intrude itself unnecessarily in the affairs of business. He said "the problem that has not yet been fully solved is to determine how and to what extent governments should, in the public interest, intervene in business affairs." Sydney Ferguson, Chairman of the board of Mead Corp., and president of the American Paper & Pulp Assn., told the meeting the advent of a new administration makes for a better business climate in the United States.

Newsprint Machine Ordered

Great Northern Paper Co. has contracted with Beloit Iron Works for mid 1954 delivery of the first of two 256 in. trim, 2500 f.p.m. newsprint machines for East Millinocket, Me., operations. The two will produce 325 daily tons. The machines are said to incorporate new pressure head box design, new suction press equipment, new calender stack design and mechanical differential gear drive.

Pres. Schubart Joined Neenah Paper in 1919

The new president and general manager of Neenah Paper Co., Neenah, Wis.—Leo O. Schubart—was born in Copenhagen, Denmark, and came to the U. S. at the age of 11, attending public schools in Neenah. He was with Kimberly-Clark from 1913-17, when he enlisted in the National Guard and went to the European war front, returning 21 months later a first looey. He joined Neenah in July 1919 and has been a director and officer since 1928, first as treasurer and as exec. v.p. since 1951.

Mr. Schubart was president of Neenah's board of education seven years, active in boys work 30 years and secretary-treasurer of the Wisconsin Paper Group since it was formed in 1934.

Mr. Brown, now chairman, was born in Britain, and joined Neenah in 1908. He was president two years of APPA, also of the Writing Paper Mfrs., and a founding trustee of the Institute at Appleton. He succeeds John R. Kimberly as chairman, the latter having resigned after becoming exec. v. p. of Kimberly-Clark.

Mr. Stafford, graduate of Clarkson College in 1914 and formerly with Dow Chemical, Strathmore Paper and American Writing Paper Corp., came to Neenah as general superintendent in 1923. Mr. Hardt, the other vice president, had graduated from Lawrence College, joined Neenah in 1948 as did Mr. Severson. Mr. Leech joined these others on the board in 1952 and other board members are Alan Adrian, director of research and Kimberly Stuart, former vice president.

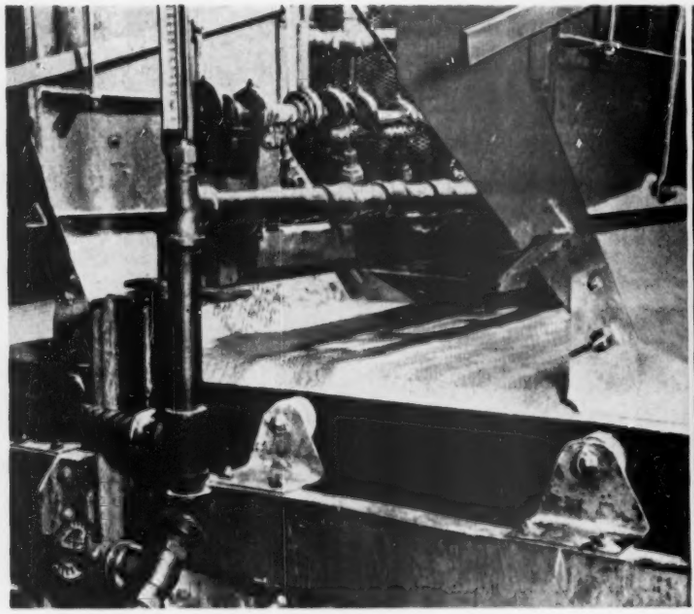
NEENAH'S REORGANIZATION

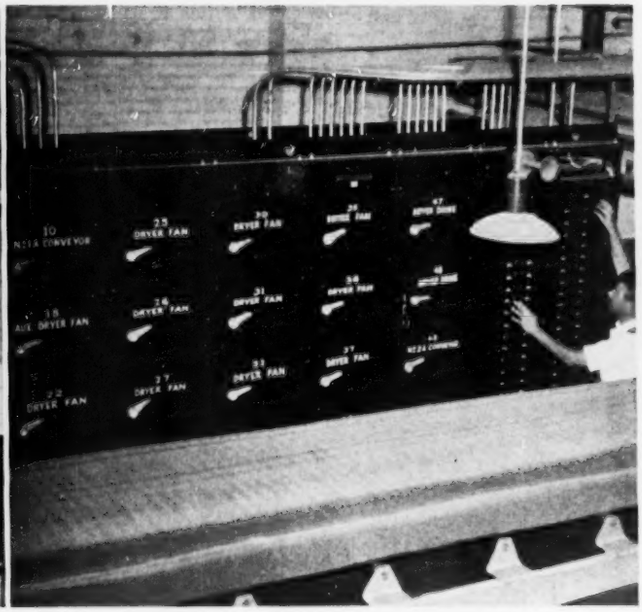
TOP—L. TO R.: D. K. BROWN, who became Chairman of Board of Neenah Paper Co.; LEO O. SCHUBART, who succeeded Mr. Brown as President and becomes Gen. Mgr.; I. J. (Jo Jo) STAFFORD, elected Vice Pres. for Manuf'g. Mr. Schubart was Exec. V.P.; Mr. Stafford was Director of Mill Operations. BELOW—L. TO R.: DAN HARDT Vice Pres. for Sales; D. H. SEVERSON, elected Secretary-Treasurer, and FRED LEECH, Sales Mgr.

Wisconsin Wire Works Holds Open House

Wisconsin Wire Works, of Appleton, Wis., recently held an evening open house for its 60 employes and their families. Baby sitters were on duty in the office to accommodate mothers. Several of the machines were in operation. Refreshments were served after the tour.

HOW SWIFT & CO. IS PRODUCING ITS NEW PROCESS GLUE



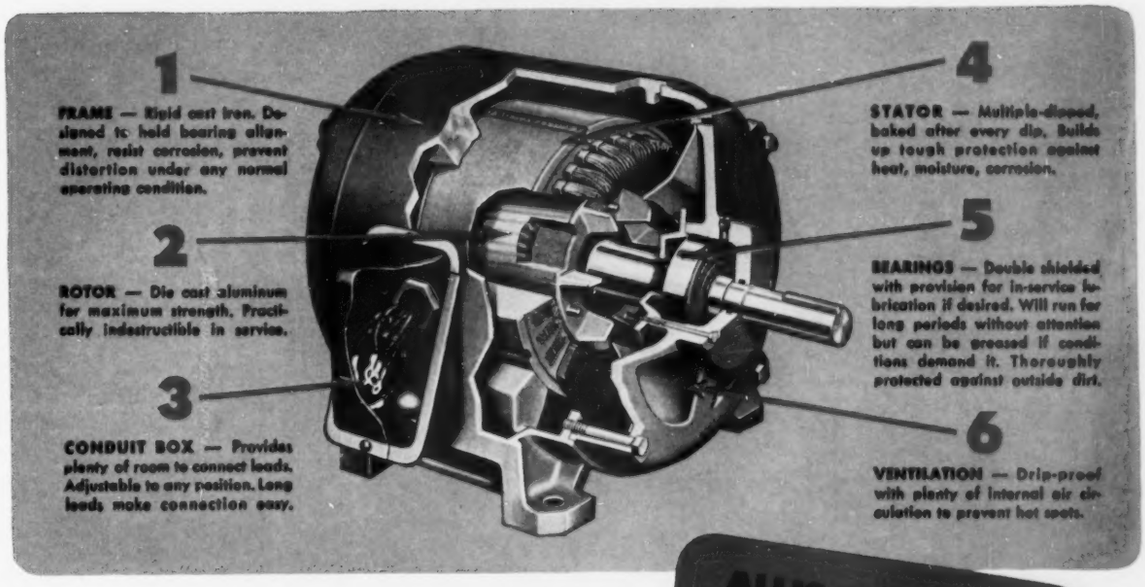


WE REGRET THAT THE CAPTIONS for these pictures in our February issue story on "GLUES BECOME SPECIALIZED," pages 86-88, were mixed up. Here is the correct description for these two pictures of the equipment used by SWIFT & CO., Chicago, in manufacturing its New Process Glue.

LEFT: The Proctor & Schwartz Apron Type Continuous Dryer is shown here—this being the dropping section where concentrated solutions drop onto a dry glue bed. Drying of gelatinous material is usually a difficult engineering task. This process improves appearance, odor and colloidal performance of this bone glue, and speed of the process prevents any possible decomposition and permits closer control.

RIGHT: Swift & Co.'s switchboard and alarm set-up for automatic control of the process. This New Process Glue is used in tissue mills for creping purposes.

Look for These 6 Signs of Good Motor Design


1
FRAME — Rigid cast iron. Designed to hold bearing alignment, resist corrosion, prevent distortion under any normal operating condition.
2
ROTOR — Die cast aluminum for maximum strength. Practically indestructible in service.
3
CONDUIT BOX — Provides plenty of room to connect leads. Adjustable to any position. Long leads make connection easy.
4
STATOR — Multiple-dipped, baked after every dip. Builds up tough protection against heat, moisture, corrosion.
5
BEARINGS — Double shielded with provision for in-service lubrication if desired. Will run for long periods without attention but can be greased if conditions demand it. Thoroughly protected against outside dirt.
6
VENTILATION — Drip-proof with plenty of internal air circulation to prevent hot spots.

Get Allis-Chalmers Motors for these Extra Values!

ALLIS-CHALMERS MOTORS

Certified Service — Nearly 100 Allis-Chalmers Certified Service Shops provide factory-approved parts and service on your Allis-Chalmers motors. Screened for modern equipment, adequate experience and business integrity, these independently owned service shops will provide you with prompt, economical repair and maintenance.

Complete Drives from One Source — Allis-Chalmers can supply your complete drive — motor, control and *Texrope* V-belt drive — from one convenient, reliable source.

Application Engineering — Your Allis-Chalmers District Office representative or Authorized Dealer will be glad to help you select exactly the right motors for your needs. For additional information, write Allis-Chalmers, Milwaukee 1, Wisconsin, for Bulletin 51B6052. A-3954

Texrope is an Allis-Chalmers trademark.

Sold . . .
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by Allis-Chalmers Authorized Distributors, Certified Service Shops and Sales Offices throughout the country.

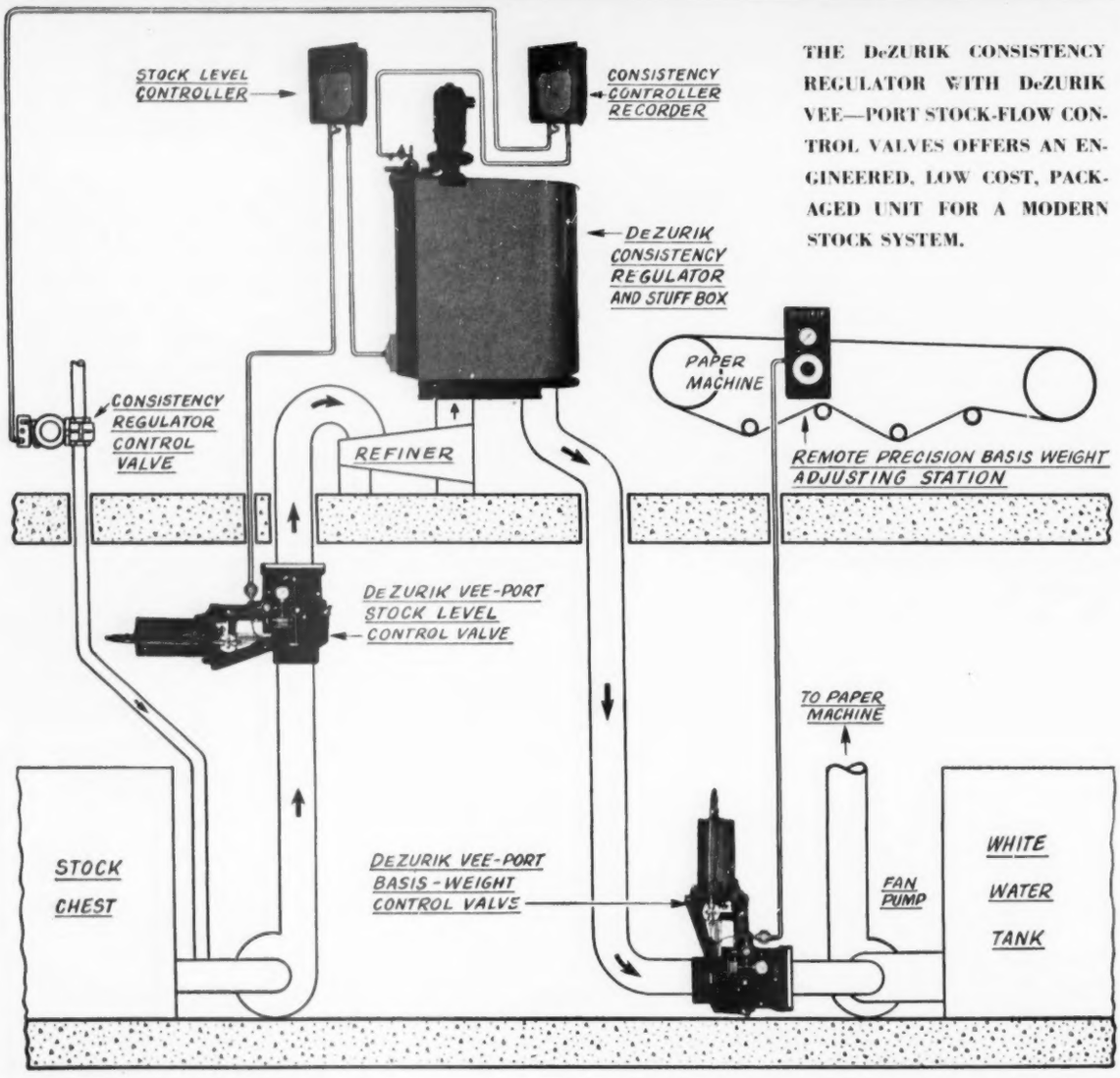
CONTROL — Manual, magnetic and combination starters; push button stations and components for complete control systems.

TEXROPE V-belts in all sizes and sections, standard and *Vari-Pitch* sheaves, speed changers.

PUMPS — Integral types from ¾ in. to 72 in. discharge and up.

ALLIS-CHALMERS

NOW! CLOSED STOCK SYSTEM FOR PAPER MACHINE SUPPLY



THE DeZURIK CONSISTENCY REGULATOR WITH DeZURIK VEE—PORT STOCK-FLOW CONTROL VALVES OFFERS AN ENGINEERED, LOW COST, PACKAGED UNIT FOR A MODERN STOCK SYSTEM.

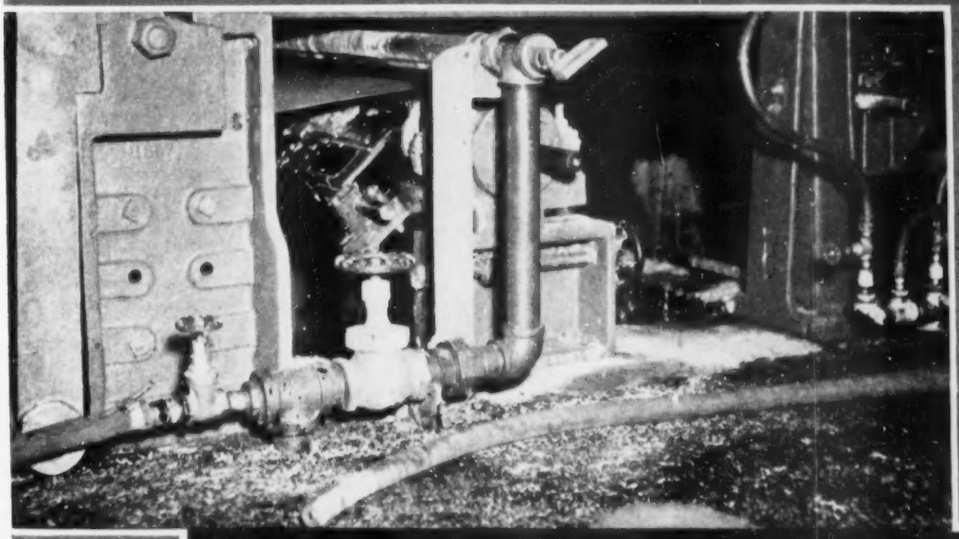
ALL THESE ADVANTAGES:

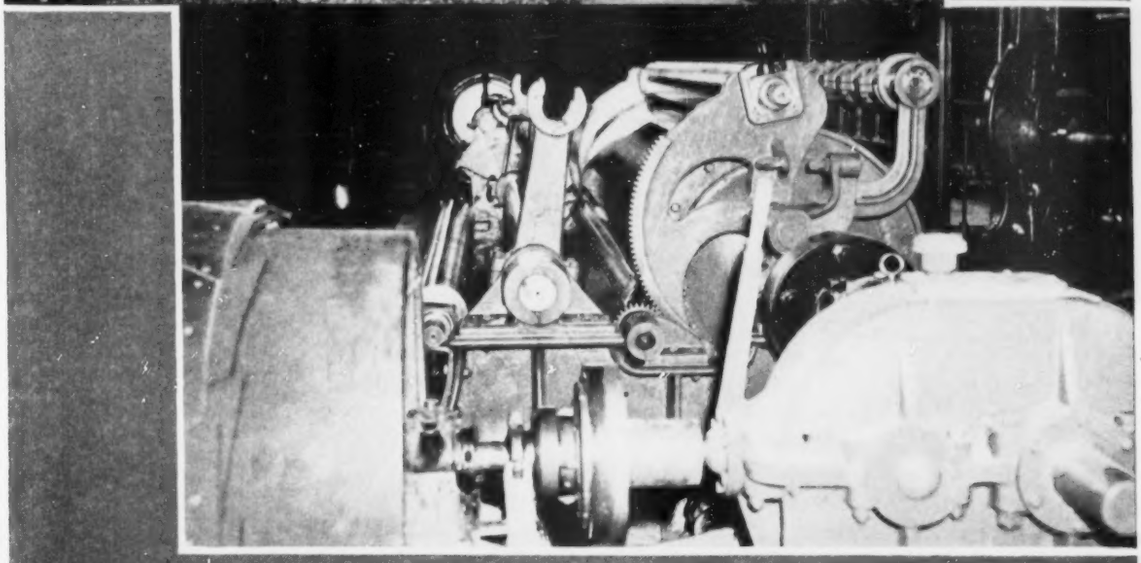
1. Eliminates all overflow of stock back to chest.
2. Stock is not refined a second time.
3. Eliminates air entrainment because system is full of stock.
4. Refiner, if used, is always full of stock for uniform fibre treatment.
5. Machine tender can change rate of stock flow without leaving his station at front side of machine.
6. Gives improved sheet formation.
7. Permits higher machine operating speed.
8. Because the basis weight control-valve is installed at a much lower level in the system than a conventional stuff-box gate, any changes in stock level at the stuff-box will have much less effect on the amount of stock delivered. More uniform basis weight results from this feature of the system.
9. The diamond-shaped orifice in the DeZurik Vee-Port Valve maintains stable flow at any setting. Only the size and not the shape of the orifice changes with different settings. There is no packing or clogging of stock in the control valve.

The best way to eliminate air from your stock system is to stop it from getting in!

WRITE FOR DETAILS TO DeZURIK SHOWER CO. SARTELL, MINN.

LODDING DOCTORS





From Fourdrinier to Reel

Lodding Engineering Corporation, Worcester, Mass.
Represented by W. E. Greene Corporation,
Woolworth Building, New York.

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Do you know the complete story of **Liquid Sulphur Dioxide**? Perhaps one of our technical men can show you how a more efficient and economical operation can be had through the use of this chemical with hundreds of uses. As a reducing, bleaching and neutralizing agent, preservative and antichlor and for PH control, **Liquid Sulphur Dioxide** will do the job better.

We are located in the heart of the great southern textile and paper industry, which assures speedy and efficient delivery to these two growing industries.

We would be pleased to consult with you and advise how **Liquid Sulphur Dioxide** can serve you better.

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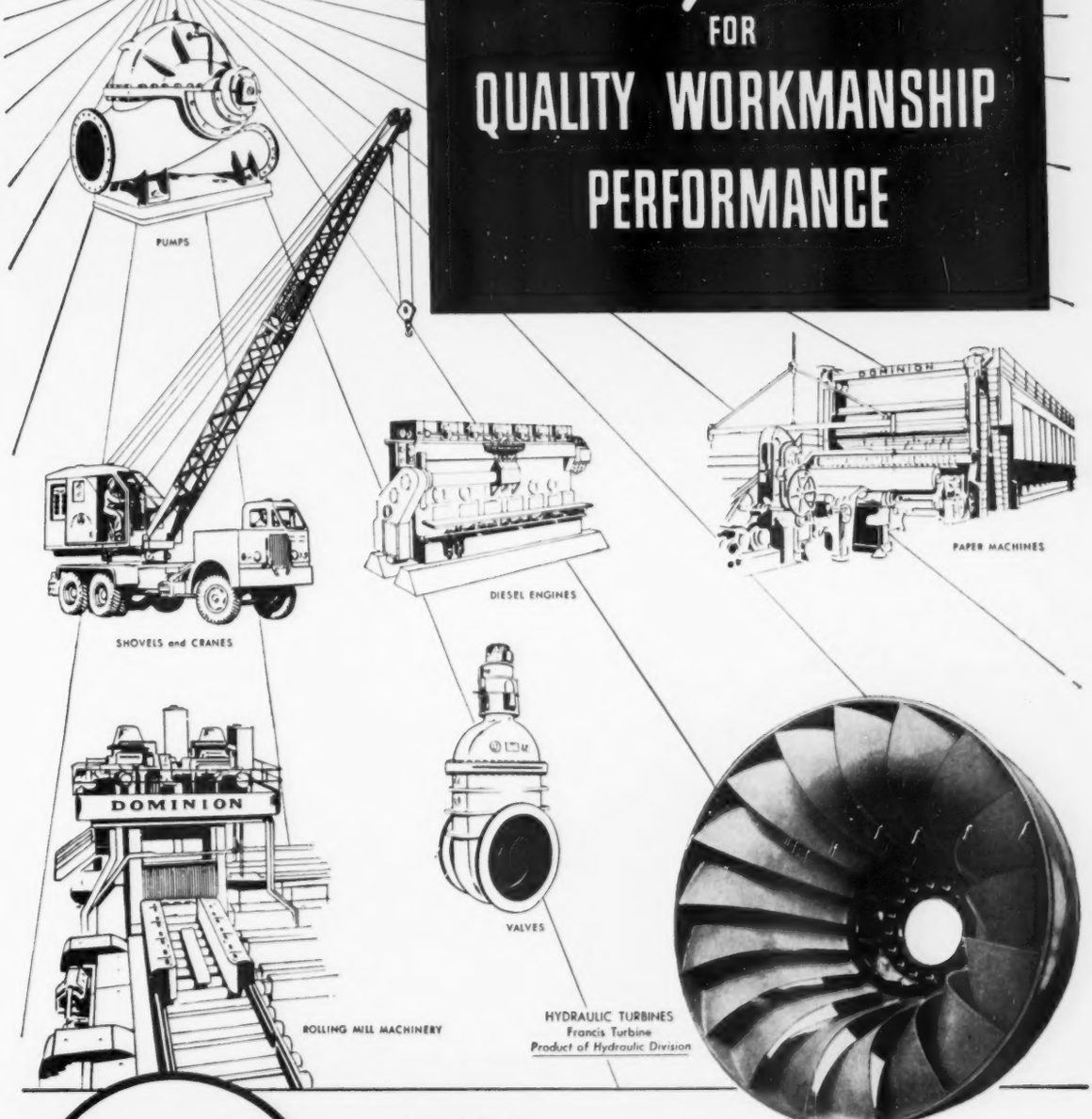
TENNESSEE CORPORATION

617-29 Grant Building, Atlanta, Georgia

Unequalled
FOR
QUALITY WORKMANSHIP PERFORMANCE



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DOMINION ENGINEERING
COMPANY LIMITED

MONTREAL • TORONTO • WINNIPEG • VANCOUVER

YOUR MONEY BACK

IF IT PLUGS

Basically, the Flex-Valve is just a piece of flexible tubing and a clamp to squeeze it shut. It can no more clog than a length of pipe. So, if you can clog one of them in normal service, just tell us, for the "incredible-but-true" record, how in the world you did it, and we'll send your money back.

Flex-Valves have solved thousands of valving headaches —in as many plants as there have been installations made. They can handle anything that flows, including aerated or fluidized solids. They close bubble-tight over 1/8" solids. Open, the flow is straight-in-line with the service piping, and completely unobstructed. There are no moving parts in contact with the lading fluid. Available in both natural and synthetic materials for every corrosive or abrasive service.

Complete details on this unique principle of control valving in slip-on, flanged, and air-motor operated types are available on request. Ask for **Bulletin 500***—without obligation, of course.*

Farris FLEXIBLE VALVE CORP.

343 COMMERCIAL AVE. • PALISADES PARK, N. J.

1192

Personals

NORTHEAST NOTES

T. E. BRUNING has been named vice president-treasurer of Oxford Paper Co.; *T. F. SPEAR*, vice president in charge of public relations; *WALTER W. HOLLAND*, mill manager at Rumford, Me.; and *HAROLD M. ANNIS*, technical director.

KARL F. LANDEGGER, president of Parsons & Whittemore, Inc., has received a signal honor in a time of anti-western propaganda by being nominated by the Bey of Tunis as Officer of the Order of Nichan Iftikhar. Mr. Landegger is also president of Societe Lyddon & Cie. de Tunisie, S.A., producers of Esparto grass. New assistant vice presidents at Gottesman & Co., Inc., are *NATHANIEL DEUTSCH* and *WILLIAM DAUMAN*. Both are veterans of the sales staff of the organization.

DOUGLAS A. PHILBROOK, formerly head of the Northeast Pulpwood Research Foundation, has joined Improved Paper Machinery Corp. as development engineer. His work with Impco is on development of logging equipment, and specifically debarking and chipping equipment which is expected to be on the market soon.

WILLIAM E. BREITENBACH, vice president, *LYALL TRACY*, now on loan in Washington, D. C., and *CHARLES H. CONRAD* recently received silver anniversary awards for service in Rayonier Inc.

BENJAMIN BENNETT, Lodding Engineering Corp., has been promoted to the position of sales engineer for the New England territory, according to *C. S. CONNINGTON*, sales manager of the company.

ARTHUR BROSIUS, an employee of Brown Co., Berlin, N.H., since 1915 and a superintendent of its Riverside and Cascade mills since 1931, has retired. He is credited with playing important roles in the development of Brown's special papers, including kraft and bond, toweling and newsprint.

FRANK J. LOVEGREN has joined the new product development department of P. H. Glatfelter Co., Spring Grove, Pa., according to *P. H. GLATFELTER*, president. The department is headed by *A. G. DREIS*, formerly with Hercules Powder Co.

ROD SEARS, plant manager of the Scott Paper Co. plant at South Glens Falls, N.Y., has been elected president of the Glens Falls Chamber of Commerce.

WILLIAM P. SHANNON has been named paper mill superintendent of Macon Kraft Co., Macon, Ga.

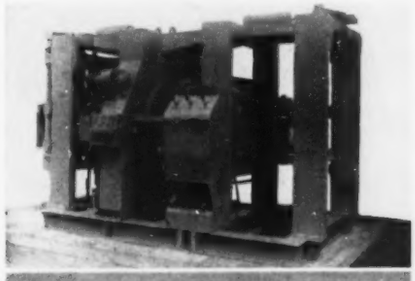
SODERHAMN

Modern and Efficient

PULPWOOD DEBARKERS

Eliminate Wood Losses

Illustrated here are our three types of mechanical Debarkers that have been so widely and favorably publicized by leading lumber journals and paper publications. They operate at very low power cost, require only small initial investment.



ANDERSON DEBARKER

Pneumatic Type

(Patent Number 2,576,966)

Effectively and economically debarks both hardwoods and softwoods up to 120 linear feet per minute. Now in successful operation in South, Northeast and Middle West.

ANDERSON PORTABLE DEBARKER

(Patent Number 2,623,558)

This revolutionary new portable debarker, using only 15 H.P., barks softwoods and hardwoods up to 120 feet a minute. Weighs only 6,600 lbs., including in-and-out feed conveyors.

CARPENTER BARKER

This small portable machine will bark soft and hard woods, 4′ up to 9′ in length. Preferably used on pulpwood for hardboard manufacturing. Weight 3,500 lbs.

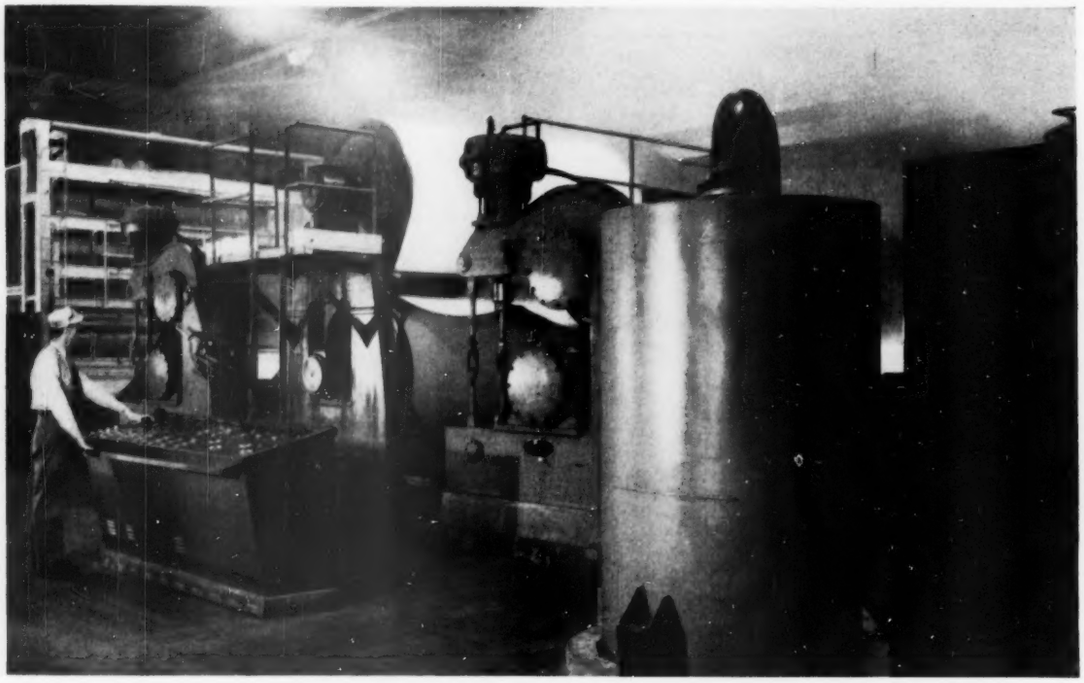
For specifications and complete information about Soderhamn wood waste recovery equipment, including Anderson Pneumatic and Portable Barkers, Carpenter Barkers, Chippers, Chip Screens, Re-Chippers, and Swedish gang mill equipment, wire, phone or write—

Canadian West Coast representative: Canadian Sumner Iron Works, Vancouver, B. C.

SODERHAMN MACHINE MANUFACTURING CO.

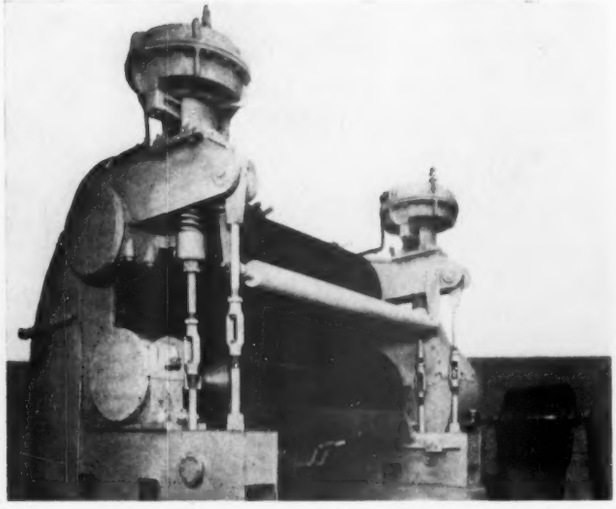
TALLADEGA • ALABAMA

HIGH DENSITY • HIGH PRODUCTION

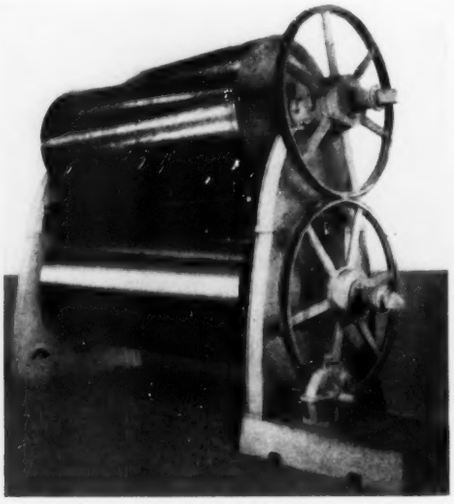


Built to exacting specifications for individual requirements in various sizes up to 156"—for as high as 300 tons per day per machine! Note air-loading for all press rolls.

IMPCO FELTLESS



Main air-loaded press sections with 36" diameter grooved press rolls—shown here from tending side.



View from drive end of 60" diameter pre-dryer section.

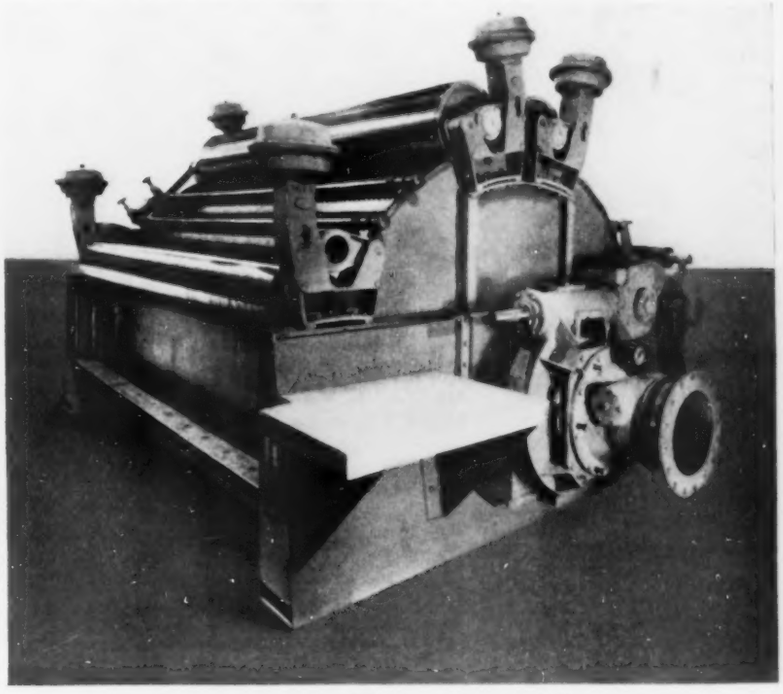
IMPROVED

NASHUA,

RUGGED DEPENDABILITY

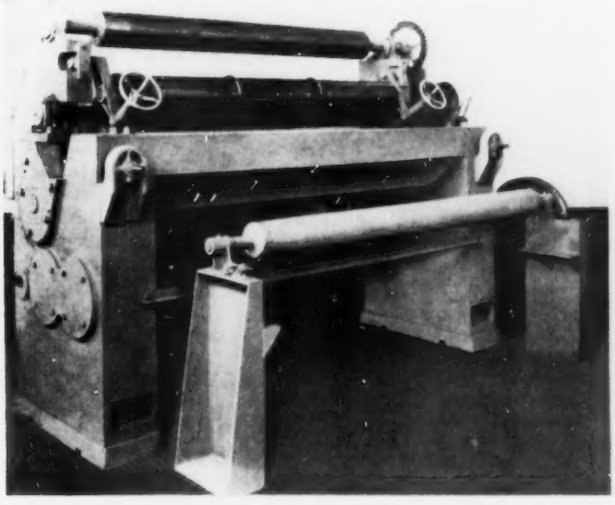
Producing sheet densities in the range of 50% to 60% A.D. on all types of chemical, semi-chemical and ground-wood pulps—the Impco Feltless Wet Machine contains a number of features new to wet machines all combined to give you long-lasting, top quality service.

Air-loading for all press rolls—extra-heavy enclosed herringbone gear drives on the press sections—new inverted type sheet cutters are but a few of the advantages incorporated in this exceptionally rugged feltless wet machine manufactured by Impco.

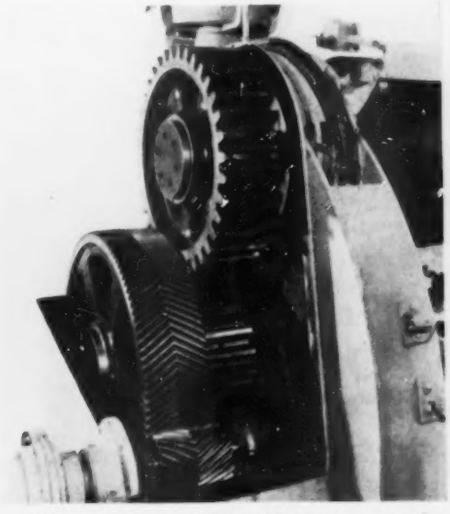


View from valve side of 8' diameter vacuum thickener for wet end showing air-loaded forming and press rolls.

WET MACHINES!



The complete unit can be installed prior to dryer sections or this Impco Slitter and Cutter can follow the final press to produce sheets of any desired size for shipping wet.



Main press drive case disassembled to show rugged herringbone gear and pinion and special long-tooth synchronizing gears.

MACHINERY, INC.

NEW HAMPSHIRE

Sherbrooke Machineries Limited, manufacture similar equipment in Canada

J-30

NASH ENGINEERING COMPANY
422 WILSON AVE., SO. NORWALK, CONN

Personals

MIDWEST NOTES

MARTIN L. HOOK, for three and one-half years an engineer in the Chillicothe, O. Division engineering office of The Mead Corp., has been promoted to assistant plant engineer at the Escanaba (Mich.) Paper Co. Division. He succeeded *DON ESTEBO*, previously reported promoted to plant engineer at Wheelwright Div., Leominster, Mass. Mr. Hook is a native of Hope, Ind., and 1949 grad of Purdue in mech. eng., joining Mead after graduation.

C. E. AHLM has been elected president, *LELAND CLUTTER*, vice president, and *ROGER BALL* secretary-treasurer of the Mead Engineers Club at Chillicothe, O.

RAY PETERSON, president of Valley Iron Works, is volunteer chairman of the Crusade for Freedom fund raising campaign in Appleton, Wis., and its county.

TALBOT PETERSON, his son, also of Valley Iron, was recently appointed the county Blood for Defense program in the Appleton area by *HENRY G. BOON*, Kimberly-Clark vice president and president of the county chapter.

CHARLES E. RIEDHAUSER has been named representative in Wisconsin, Minnesota, Illinois, Michigan, Indiana and Ohio for H. Waterbury & Sons Co. He covered similar territory for Morey Paper Mill Supply Co. He attended University of Texas and served in the Marines in WWII.

NORVAL BARLAMENT, former chief engineer of Hudson-Sharp Machine Co., has joined the engineering staff at Hoberg Paper Mills, Green Bay, Wis. He has charge of engineering and development for the converting department.

DONALD BUKOSKI, *GEO. RENTMASTER* and *RICHARD GAY* were promoted to converting department tour foremen at Hoberg Paper Mills.

Dr. C. J. West Dies

Dr. Clarence J. West, editor of publications and bibliographies at the Institute of Paper Chemistry, Appleton, Wis., and 1937 winner of the TAPPI Gold Medal, died Jan. 29. He was 66. He came to the Institute in 1936 from Washington, D.C., where he had spent 15 years with National Research Council of the National Academy of Sciences.

Born in Brighton, Mich., he earned A.B. and doctorate degrees at the U. of Michigan, and a teaching degree from Michigan State Normal. After serving as major in chemical warfare in World War I, he was with Arthur D. Little, Inc., Boston, before going to Washington.

HAVE YOU ANY PROBLEMS?

Hygrotester
most important since 1932

TESTING AND
REGULATING

MOISTURE
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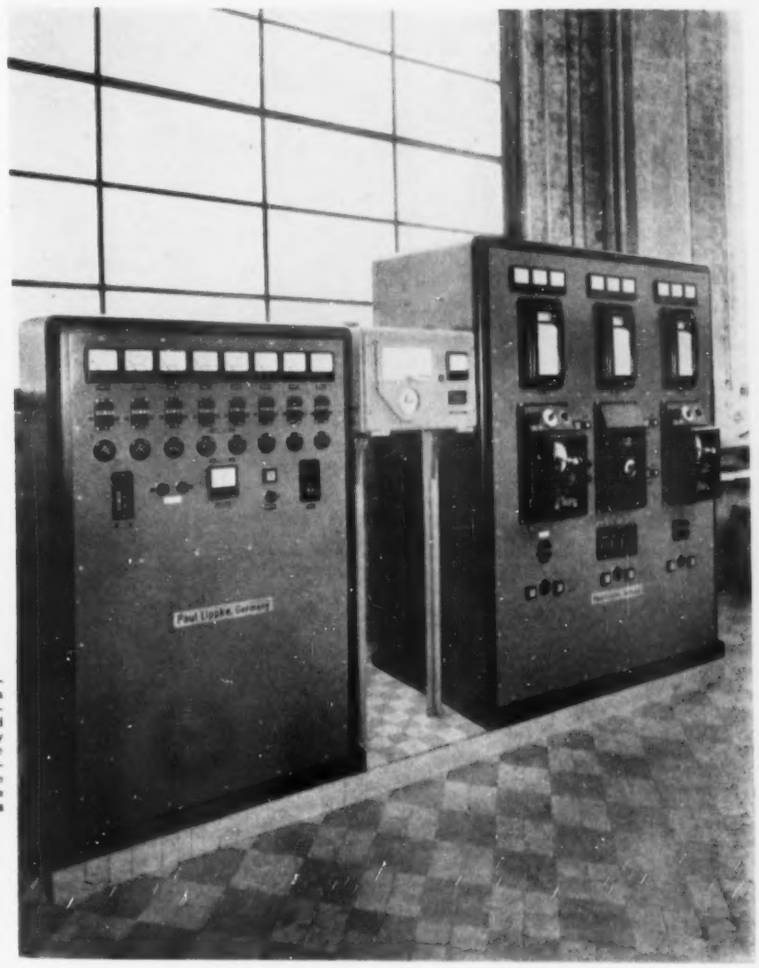
WEIGHT
•
THICKNESS



THIS HYGROTESTER equipment automatically controls 5 cylinders in the wet-sections of a paperboard machine, the breastbox by regulating the valves of the stock boxes, moisture content by regulating the steam, and at the same time measures thickness across the entire sheet.

BE SURE

WE CAN HELP YOU!

in all types of paper, paperboard and pulp—
at any machine speed

the best way: RENT OUR TESTING OR REGULATING EQUIPMENT

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101 HENRY STREET
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HYGROTEST, NEW YORK

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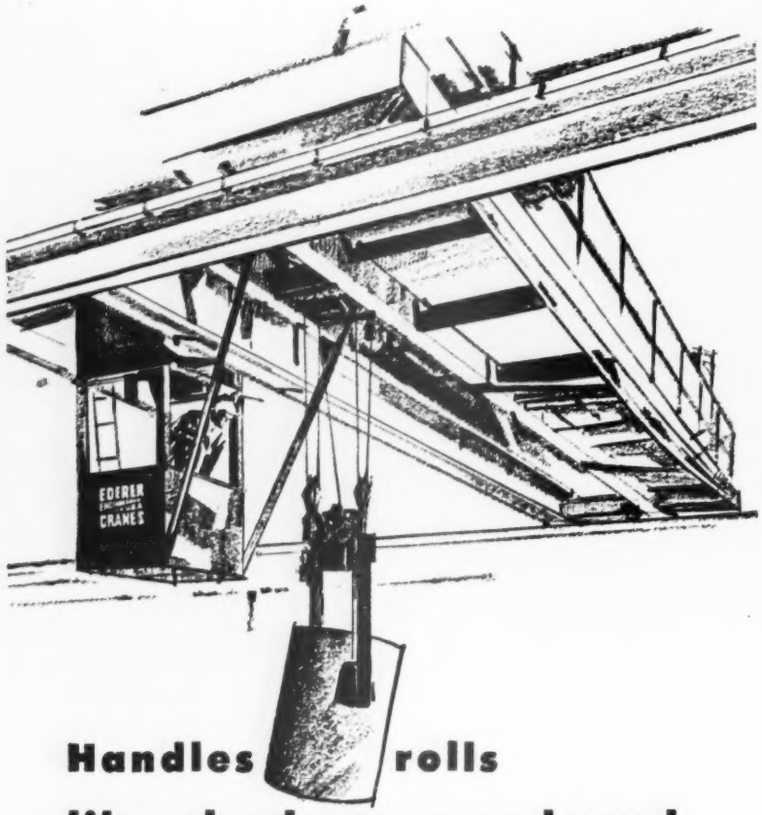

Handles rolls like checkers on a board

This 3-ton EDERER grapple crane was "job-engineered" for St. Regis Paper Company to handle rolls fast and efficiently. It has a 41-foot 1-inch span and hoist speed of 75 f.p.m. Trolley and bridge speeds are respectively 125 and 390 f.p.m. The cab is attached to and moves with the trolley, which puts the operator directly over every roll he moves. Operating from above, it is possible to practically eliminate aisle space.

This crane is typical of the many specialized cranes EDERER has "job-engineered" for the country's leading pulp and paper manufacturers. Similarly, EDERER can "job-engineer" to *your* requirements. Delivery can be made to meet your schedule for plant expansion or new construction. An EDERER engineer will be glad to discuss it with you.

EDERER ENGINEERING CO.
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EDERER CRANES

217C53

OVER 50 YEARS "JOB-ENGINEERING" PULP AND PAPER CRANES

Personals

SOUTHERN NOTES

APPLETON WOOLEN MILLS has announced that *WALLACE DUMOND* will represent the company in the Southern states. Mr. Dumond has had a wide experience in the Southern pulp and paper industry which gives him a background well adapted for the sale and application of papermakers felts.

DONALD H. BREWER, first vice president, O. B. Andrews Co., Chattanooga, Tenn., has been named general manager of the newly created folding carton division, Container Corp. of Am., of which Andrews Co. is a subsidiary.

KARL M. GUEST, in recent months assistant to William T. Webster, vice president and general manager, mill, division, National Container Corp., Jacksonville, Fla., has been named manager of the Valdosta, Ga., mill, now under construction. *C. G. EUBANK*, mill manager, Kimberly Clark Corp., Memphis, Tenn., received his 25 year pin from the company.

FRANK S. KAUFMANN has been named purchasing director for Atlanta Paper Co., succeeding John H. Hellweg, transferred to sales.

A. C. GOODYEAR, board chairman of Gaylord Corp., has been named executive committee chairman, Gulf, Mobile & Ohio RR. This railroad, simultaneously, announced purchase order placement for 100 pulpwood rack cars costing $600,000.

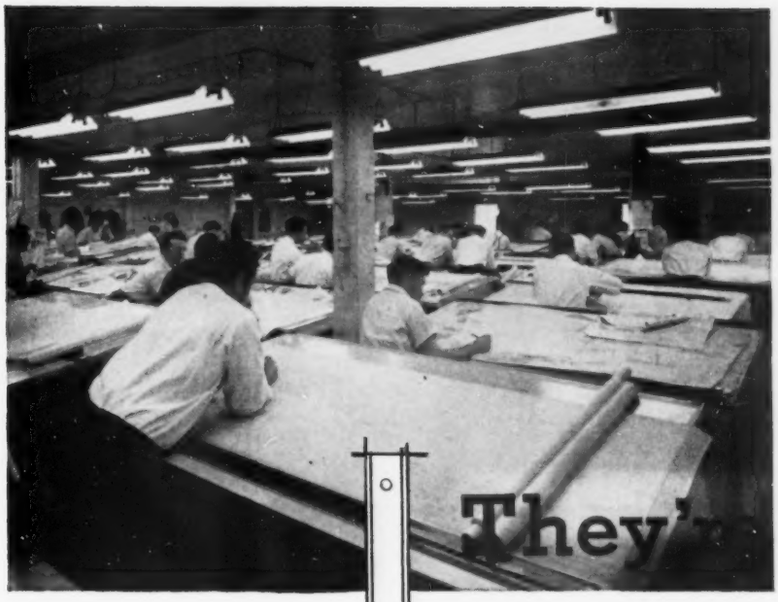
B. BENNETT, with Meridian, Miss., Div. eight years, was transferred to The Flintkote Co.'s Los Angeles mill as chief electrician. Bill Rush was promoted to chief electrician's vacancy at Meridian.

IKE FARLEY has been named manager of Annin Co.'s new Houston, Texas office at 6209 Edloe Street, zone 17.

CANADIAN NOTES

BILL HERDMAN, longtime treasurer of Bowater's Newfoundland Pulp & Paper Mills, Corner Brook, Nfd.

Several changes in operating personnel at the MacMillan & Bloedel pulp mills on Vancouver Island, B.C., have been announced by President *B. M. HOFFMEISTER*. At the company's Harmac mill *S. M. COLLIER*, plant superintendent; *R. F. SIMKINS*, plant engineer, and *D. B. RANKIN*, office manager and accountant, have resigned. *EINAR WALLOE*, formerly superintendent of the company's Port Alberni mill, has been appointed superintendent at Harmac and *FRED MILLARD*, formerly assistant superintendent at Harmac, has gone to Port Alberni as superintendent. *J. ROGERS*, formerly of Pacific Mills Ltd. at Ocean Falls, has joined the company as plant superintendent at Harmac. *D. M. ALDIS*, formerly accountant and office manager at Alberni has been given similar duties at Harmac. *GORDON FRASER*, formerly cost accountant at Alberni, is now accountant and office manager at Alberni.



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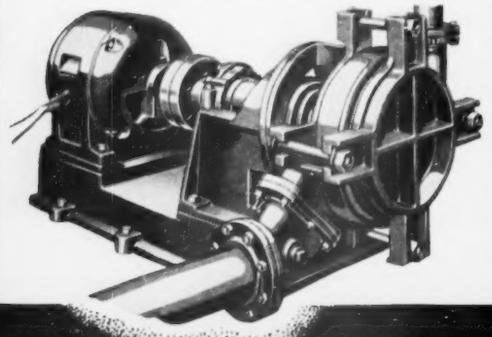

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TYPE "R" SLURRY PUMP

Here's why the durable Type "R" provides longer service and requires minimum maintenance in handling black liquor!

- **Heavier wear-resisting parts—designed for exceptionally long life.**
- **No internal studs or bolts—caustic liquors cannot seep past threads and cause maintenance headaches.**
- **Low pressure stuffing box—since the gland is under suction pressure only, most packing troubles are eliminated.**
- **Suction disc liner—to minimize wear, an extra-heavy liner is provided between the suction disc and impeller.**
- **Interchangeable parts—pump parts of different alloys may be substituted to compensate for changes in the corrosive or abrasive action of the materials handled.**
- **Fewer wearing parts.**

In addition, Morris Type "R" is so easy to put on this rigorous kind of job. It fits into an existing piping layout just about as readily as in a new system — because its suction and discharge nozzles can swivel to 72 possible positions. It's so simple to dismantle, too — its impeller can be removed without disturbing piping or bearings. And the shell is interchangeable for left- or right-hand rotation.

Specify MORRIS TYPE "R" SLURRY PUMP { *For maintained high output . . .* / *For fewer shutdowns . . .* / *For less repairs . . .*

Write for literature on this advanced-design Black Liquor pump.

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MORRIS *Centrifugal Pumps*

IN PACIFIC COAST NEWS

CHARLES D. DICKEY JR. (left), whose appointment as Manager of Procurement for Scott Paper Co.'s West Coast operations, with headquarters at Soundview Pulp Division, Everett, Wash., was previously announced in **PULP & PAPER**. He is a Yale grad, with Scott since 1946, as industrial salesman, buyer in Chester, Pa.

CARL C. CASTLE (right), transferred from Seattle offices of Dow Chemical Co., to Midland, Mich., to a new position in Organic Chemical Sales. Since 1946, he represented Dow in Pacific Northwest forest products industries sales. A native of Seattle, graduate of U. of Washington.

DR. FRANCIS O. WHIPPLE, who recently received doctorate in physical chemistry at Oregon State College, joined Crown-Z pulp and paper research section, Camas, Wash., in February.

GERALD MORRELL, of Bellevue, Wash., resigned from Van Waters & Rogers Co., which he represented in the paper mill field, and he is in real estate business in Bellevue.

WILLIAM THIEME, who was star end of Everett High's Washington State championship football team, which won the title game in Seattle, is a son of *IRWIN THIEME*, technical director of Soundview Pulp Div., Scott Paper Co. *PAUL BALDWIN*, assistant vice president, in charge of new paper mill development at Everett, for the Soundview division of Scott Paper, returned to Chester, Pa., headquarters for a visit in February.

LEONARD BLOFELD, shift engineer at Weyerhaeuser's Pulp Division in Everett, received that division's first check issued under a company tuition refund plan on completion of a steam engineering correspondence course in which he made 57 A's, two B's and one C.

WILLIAM G. REED, chairman of Simpson Logging Co., Seattle, was elected president of the United Good Neighbor Fund in that city.

ELMER CHRISTOFERSON of Soundview Pulp Division of Scott Paper Co., new member of TAPPI's Pacific Coast executive committee.

R. M. STAMPLEY, long in Oakland, Calif. offices of Oliver United Filters, has opened new offices in the Statler Bdg., Los Angeles, to represent that company in Southwest states and Southern California.

1853 1953 100th Anniversary

LYDDON & CO.

PARSONS & WHITTEMORE

250 Park Ave., New York 17

MOSINEE'S STORY

(Continued from page 60)

New additions are an air-loaded Beloit 88-in. paper and board reel, as well as a 3600 foot per minute Beloit winder and hydraulic winder bench.

The motor-generator machine drive was separated into three sections to allow creping at either creping press. It is powered by a two motor-generator sets, a new 600 HP set being added, and the existing set rebuilt.

Additional features include a cooling fan system for the motor-generator sets and calender stack and a Ross-Grewin air system. An additional Milwaukee Crane Co. 8 ton crane, recently installed, speeded up the rebuild and will provide greater flexibility in machine maintenance.

Modernization of No. 2 paper machine was completed during an eleven day shutdown in May, 1952. The rebuild entailed the following changes and additions in order to increase drying capacity and improve paper quality!

New breast roll stands, rail stands, rails, a forming board and new tube rolls were installed together with two additional suction boxes and new suction box separators, all supplied by Beloit. New Beloit return wire rolls and Lodding doctors, saveall pans and a dandy roll were added, the couch pit was tile-lined and a stainless steel wire pit sump was built to increase pit capacity. Manhattan Rubber did the roll covering.

Five Beloit 150 lb. high pressure dryers were added with two former dryers relocated as additional felt dryers in the first and second sections. The size press was relocated to provide two additional dryers in the after dryer section.

Miscellaneous

A new Warren centrifugal stock pump was installed and stock and white water piping was replaced with Transite, copper and stainless steel non-corrosive pipe wherever deemed necessary. A Midwest-Fulton drainage system was added. Also an oil system for new Beloit anti-friction dryer bearings. Other changes included removing old concrete slabs in the felt pits, new steam piping and painting the machine, machine hood and machine room.

The additional dryers and felt dryers increased machine capacity and improved drying balance in each section. Fourdrinier modifications were made to improve sheet formation, speed wire changes and improve wire life. The addition of anti-friction bearings on the new dryers, all felt dryers and felt rolls resulted in an overall power reduction. The Central States Engineering Co., Appleton, Wis., together with the mill engineering department designed the modernization of the machine.

Rebuilding of the paper machines began in 1948 with No. 3 machine. Additional drying capacity, quality improvement and greater machine flexibility were major objectives.

A new Valley Iron Works slice, rectifier rolls and headbox inlet distributor piping were installed on No. 3, the former headbox being modified to allow higher machine speeds. Rectifier rolls are provided with variable speed drives for regulation over a wide range of weights and machine speeds.

New breast roll stands, rail stands, rails, a forming board and new tube rolls were installed, suction box separators and additional suction boxes were added together with a Broughton control system. New return wire rolls and Lodding doctors, saveall pans and a lump breaker roll were installed and both couch and wire pits were tile lined by Stebbins Mfg. & Engineering Co. Roll covering was by Manhattan.

Eight Beloit 100 lb. high pressure dryers were added and dryers were relocated in the last section to provide space for the new size press and after dryer section. Three hypoid drives were installed in the dryer sections and a new hood was built over the after dryers. Additional felt dryers and felt guides were provided. The size press was designed by the Central States Engineering Co., of Appleton, and the mill engineering department.

A new Beloit paper and board reel and reel drive were installed and a Midwest-Fulton drainage system and Bowser oil system for dryer anti-friction bearings were added.

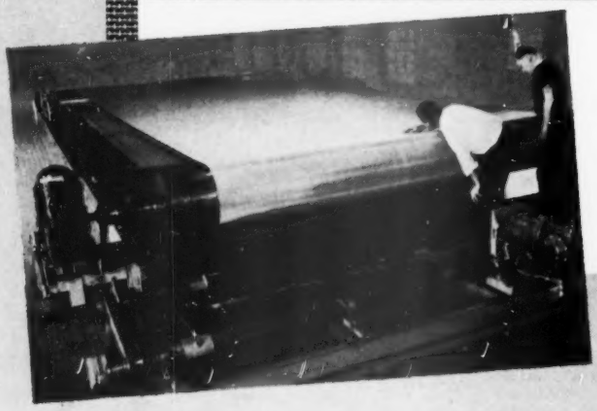
The modernization added approximately 30% to the drying capacity of the machine with machine speeds being increased to 1100 ft. per minute on lightweight sulfate specialties.

Central States Engineering of Appleton worked with the Mosinee engineering department on the rebuild design and the C. R. Meyer and Sons Co., was primary contractor.

Turbine and Electrical Distribution

A continually increasing demand for power as a consequence of plant additions and modernization resulted in a mill

Two of the Men Behind Eastwood Wires



FINAL EXAM

Here James Baney and Clarence Reed are making a final, inch-by-inch examination of a large fourdrinier wire. Though this is a final check, it is only one of many given it at every stage of its manufacture, from the casting of the alloys in our own foundry to the stretching table inspection shown above.

Because the Eastwood-Nealley plant is a *completely integrated* operation, every wire we ship has undergone thorough and continual analysis, control and testing from the raw metals to your finished fourdrinier wire ready for quality paper production.

We are proud to say they are *truly ours* — "from ingots to fourdrinier wire".

EASTWOOD-NEALLEY CORPORATION
Belleville, N. J.

request for a complete power survey by Helmick & Lutz, a Minneapolis consulting firm and the Mosinee engineering department. This report, submitted in 1949, covered present use and cost of steam and power produced and purchased, and the cost and economies in the installation of modern steam producing and generating equipment as well as a modern electrical distribution system and switching equipment.

The existing steam generating equipment consists of four Babcock and Wilcox 4-drum Stirling, 500 H.P. boilers built for 165 lb. gauge pressure and 75 degree superheat. These were installed in 1917. In addition, the pulp mill operates five liquor recovery boilers and one refuse boiler, four being 78 in. by 20 ft., one 90 in. by 20 ft. and one 108 in. by 22 ft. All are H.R.T. units, the recovery units being equipped with Mosinee designed liquor spraying equipment.

Steam-electric generating equipment consisted of one 2500 KVA straight condensing and one 1250 KVA back pressure, Curtis type, General Electric turbo-generators installed in 1917. The back pressure unit exhausted at an average pressure of 22 pounds gauge, providing process steam for the paper machine dryers and liquor evaporators. Both units were inefficient by modern standards and the cost of steam per kilowatt hour on the condensing unit was prohibitive.

A three unit vertical type hydro-electric station on the Wisconsin River provides power at 2300 volts to the mill, the No. 1 unit, an Allis-Chalmers, being rated at 2250 KVA and No. 2 and No. 3, Leffels, at 625 KVA each. The total generating capacity of 3500 KVA is, of course, dependent on conditions of river flow.

All power requirements not made by the preceding equipment was purchased from the Wisconsin Public Service Co., stepped down from 41,000 to 2300 volts through three 833 KVA Mosinee-owned transformers. It was necessary to load and balance the Mosinee equipment in order to reduce condensing turbine and purchased power to the smallest possible amount to obtain a minimum overall cost per KW hour.

In view of immediate and future additional power requiremtnts, greater economy of operation and the elimination of obsolete equipment, the engineering report included the following recommendations:

1. Additional combustion control and meters for present boilers
2. New switchgear and distribution system.
3. 4000 KW turbine.

The first item was adopted immediately and the old combustion control replaced with a modern air-operated Bailey Meter unit, and meters were installed for the four present coal fired boilers.

In 1951, after considerable study of the report, the decision to install the 4000 KW turbine, switchgear and distribution equipment was made in view of present obsolescence and immediate future requirements.

The plans called for a new 2400 volt system feeding selected substations located at key points in the plant. New air circuit breakers were designed for adequate interrupting capacity and momentary ratings for the presently planned installations and for future expected growth. Metal enclosed switchgear separately compartmented was specified to avoid congestion and to eliminate the possibility of a fault shutting down the entire plant. The center of the distribution system is located in the new turbine room, a separate room constructed for the soda recovery building adjacent to the coal-fired boiler building, and from this point the 2400 volt feeders radiate to the various load centers. Low voltage circuits are

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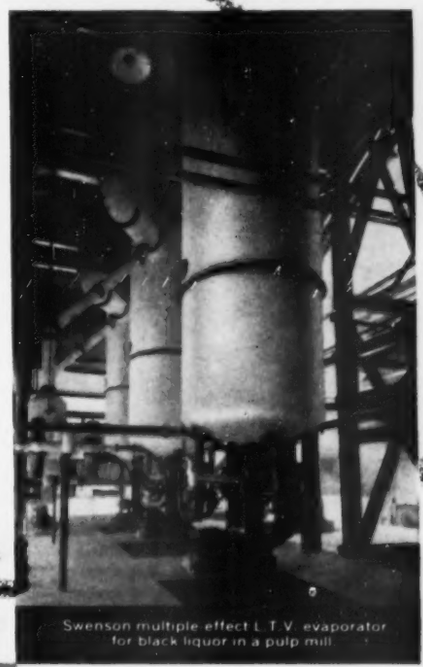

Swenson multiple effect L.T.V. evaporator for black liquor in a pulp mill

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made as short as possible by locating each load center at the approximate center of its load.

The modern extraction condensing turbine materially reduced operation costs in addition to reducing purchased power requirements. The turbine is located close to all steam generation equipment and power switching equipment, providing desirable operating convenience in contrast to the old system where they were separated by considerable distances.

Distribution System

The electrical system includes a three conductor self supporting aerial cable across the mill buildings and railroad tracks to the new turbine and switchgear room. At this location Westinghouse 2400 volt indoor metal clad switchgear with air-operated circuit breakers and controls were installed.

A control switchboard was installed complete with relays, watt hour meters and voltage regulators with a synchronizing panel and the incoming and load center controls.

Two 1500 KVA Westinghouse dry type, air insulated 2400/480 volt, 3 phase, 60 cycle transformers were installed in the old turbine room to replace six old 500 KVA water cooled transfomers.

In addition, five load centers with transformers and low voltage switchgear were installed at central locations in the mill. The paper machine load centers were located in new ventilated enclosures with concrete floors and transite walls to isolate the equipment from the corrosive atmosphere of the beater room. Outside air is supplied at a rate of 10,000 CFM through a dry type filter. Exhausted air goes to the machine room aiding a previous air deficiency in this department.

At the time the load centers were planned, the mill decided to rewind the 440 volt Jordan motors for 2200 volt operation and new 2200 volt controllers were purchased. An overall reduction in equipment cost was thereby possible.

Turbine

A Westinghouse condensing single automatic extraction turbine, designed to operate with steam at the throttle of 150 psig, 440° F. total temperature and exhausting at 2″ of mercury absolute, was installed. The turbine is presently operating at an automatically controlled extraction pressure of 40 psig, but can be varied from 20 to 50 psig. The increased extraction pressure from 22 lb. to 40 lb. resulted in additional drying capacity on the paper machines and additional evaporation of black liquor. The turbine has all normal accessories, oil and steam pressure gauges being mounted on the turbine control panel.

The Westinghouse generator is rated at 4000 KW, 0.8 power factor, 5000KVA, 3600 r.p.m., 3 phase, 60 cycle 2400/4150 volt, 0.85 short circuit ratio, A.C. with internal ventilating fans. Normal accessories are also included, and a separate oil filter maintains clean oil in the circuit.

The condenser has 6000 sq. ft. of effective surface and is a two-pass radial flow type with divided water boxes. The condenser is supported on the concrete turbine foundation with an expansion joint between turbine exhaust and condenser inlet. A deaerating type condenser hot well with controlled recirculation to maintain a constant level is included.

In addition, two stage condensate pumps, a twin element air ejector mounted on a combined surface type intermediate and after condenser and the normal complement of instruments and gauges were installed. A 10 ton overhead crane was provided to handle all heavy equipment in the turbine building.

A new Ingersoll-Rand 8860 GPM pump was installed parallel to the existing mill water supply pumps to provide condenser cooling water and additional mill water. A loop header was installed for all pumps with two 20 in. mill supply lines and an 18 in. line from mill supply to the condenser and return from the condenser. Two 3500 GPM Ingersoll-Rand circulating pumps take water from the mill supply system and during periods of low mill water supply temperature, discharge the water through the turbine condenser to raise its temperature before returning to the mill system. When the mill water supply temperature is high the circulating pumps discharge the water through the condenser annd waste it to the storm sewer. A temperature regulating valve conserves water by regulating the amount of flow in order to maintain a pre-determined water temperature at the condenser outlet.

The following additional instruments and controls were added to the turbine control board to provide a constant check on plant performance: (1) Totalizing steam flow meter—coal fired boilers; (2) totalizing steam flow meter—soda recovery boilers; (3) throttle steam flow for 4000 KW turbine; (4) extraction steam flow for turbine; (5) condensate flow for turbine; (6) circulating water flow for turbine; (7) steam flow to 150—35 psig reducing station; (8) 150-35 psig pressure reducing station controlled with selector valve; (9) circulating water control with selector valve; (10) absolute pressure recorder—condenser, and (11) air leakage recorder—condenser.

Building

The turbine room, designed to later accommodate a topping turbine, was built within the evaporator-soda recovery building. The turbine-generator is supported on a reinforced concrete foundation and a mat carried on concrete piles independent of the building floors and foundation. Building floors are of reinforced concrete, walls of tile, and ceiling of transite. The duplex type switchgear has the control section at the operating floor level and the breaker section on a mezzanine floor directly above.

A ventilating system was provided to pressurize the turbine room as a protection from the corrosive atmosphere of the evaporator and soda recovery room and includes D. J. Murray blast heating coils, an American Air Filter, and a 20,000 CFM fan. Air is exhausted through the roof by three exhaust fans, and can be exhausted to the boiler room or evaporator-soda recovery room.

A reinforced concrete tunnel was constructed between the turbine room basement and the mill basement underneath the mill railroad tracks to accommodate the water line to the condenser and from the condenser to mill supply, as well as the extraction steam line to the mill.

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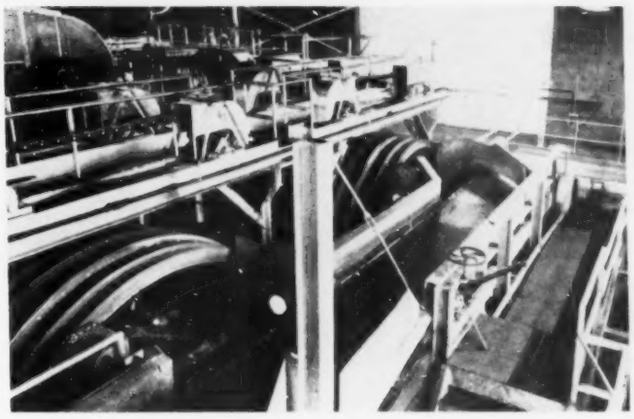

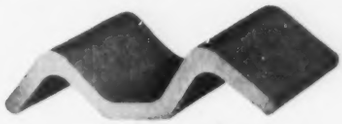

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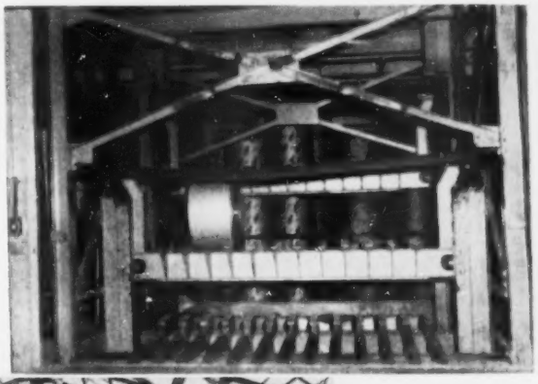

When Crossett Paper Mills at Crossett, Ark., wanted to build a new all-weather shipping dock to streamline the shipping of their converter rolls and minimize both hand labor and use of lift trucks, they turned to WILLIAMS & WILSON for the most efficient type of equipment. The WILLIAMS & WILSON DELEVATOR and CONVEYOR BELT have proven their worth already in the short time they have been in operation.

Above, Converter rolls coming down this WILLIAMS & WILSON DELEVATOR from finishing room at Crossett Paper Mills, Crossett, Ark., are rolled out of the building by a slight elevation across an intervening platform to Crossett's new all-weather shipping dock where (right) they reach this WILLIAMS & WILSON CONVEYOR that extends down center of 472 foot long dock. They are removed when opposite railroad car door.

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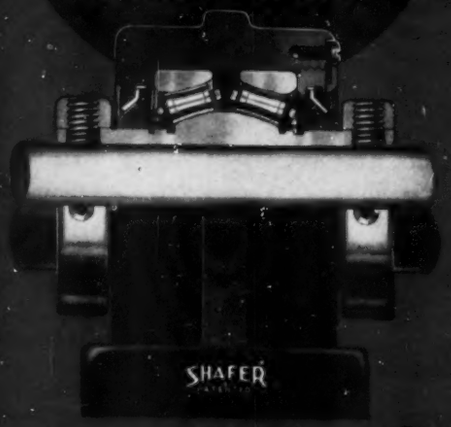

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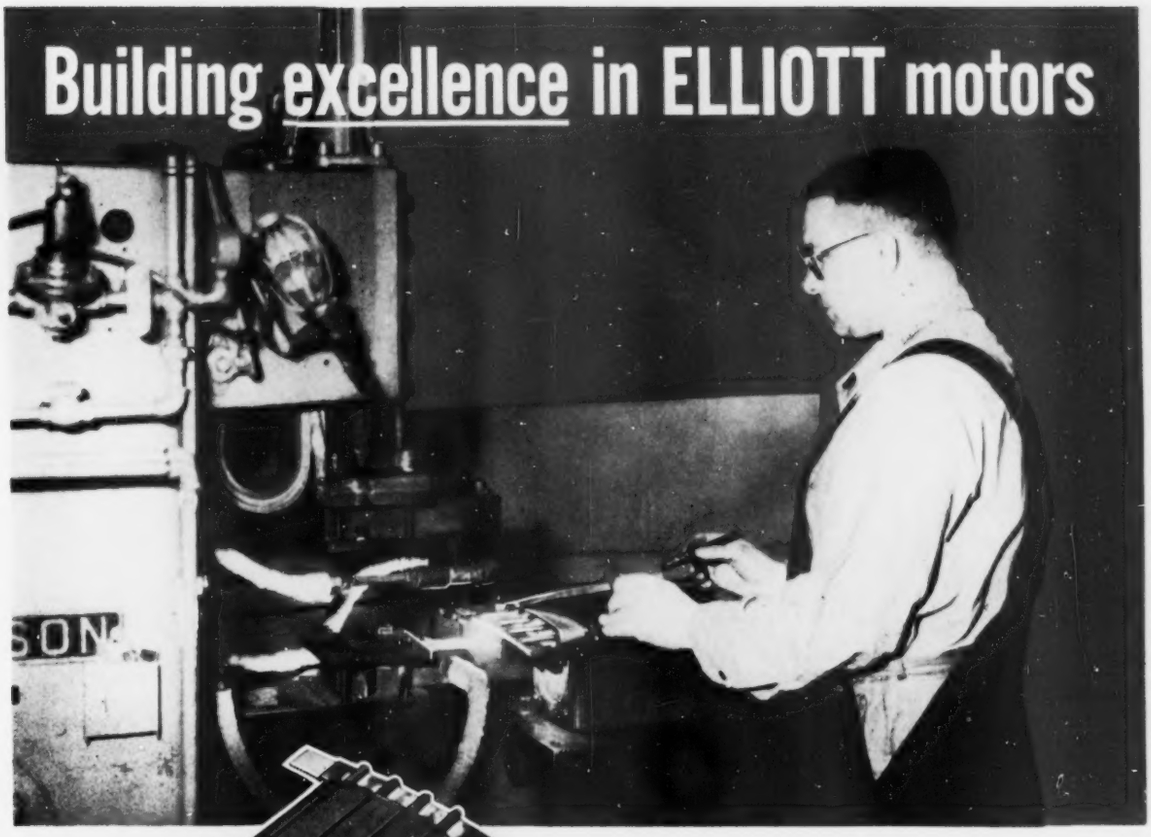

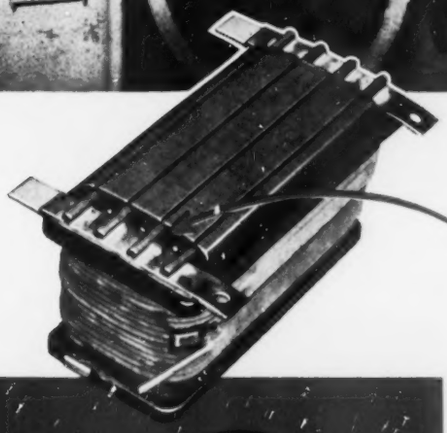

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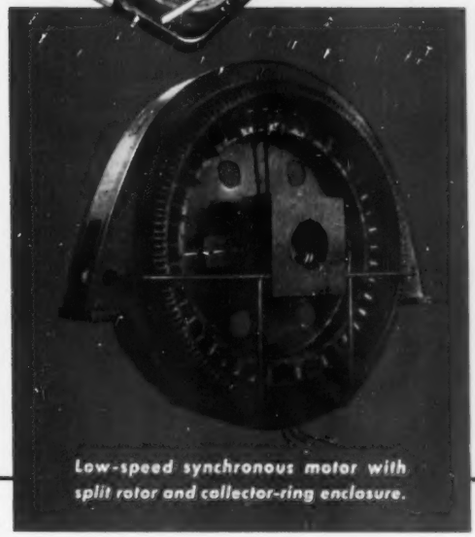

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R3-7

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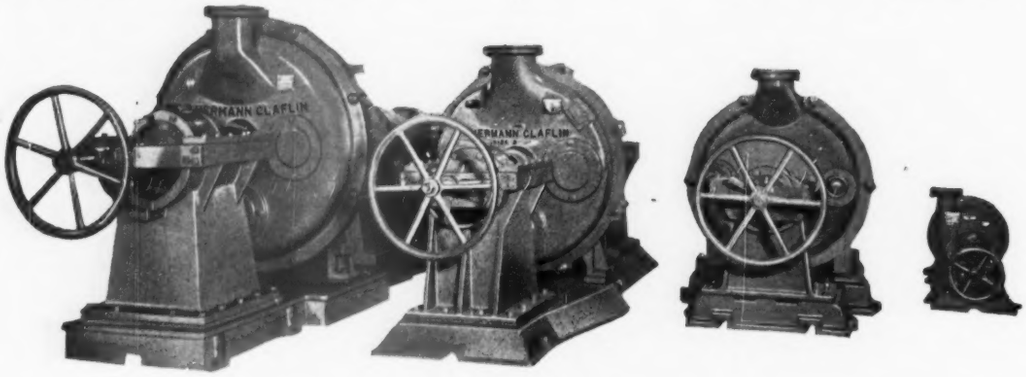

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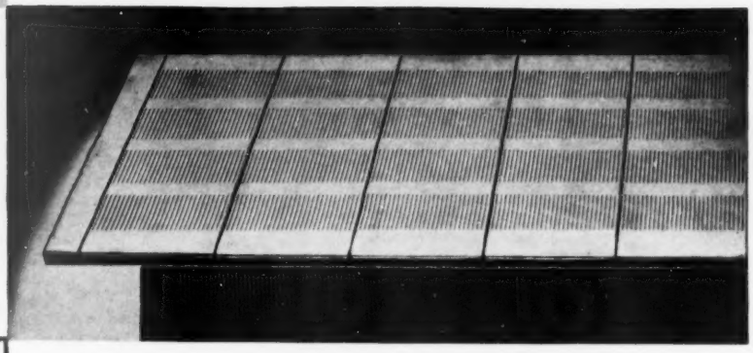

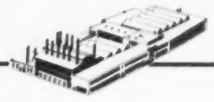

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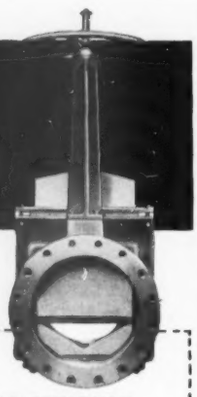

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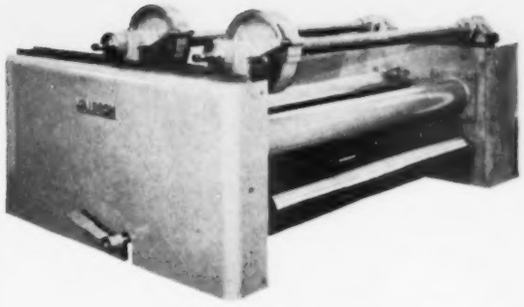

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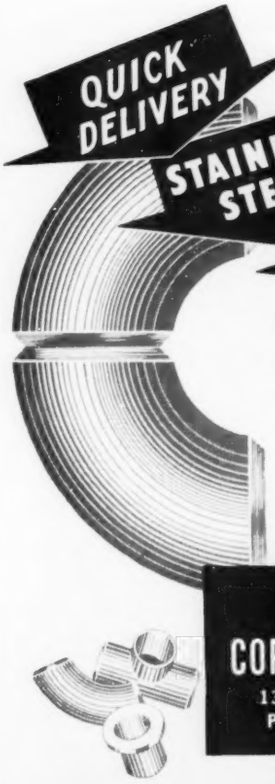

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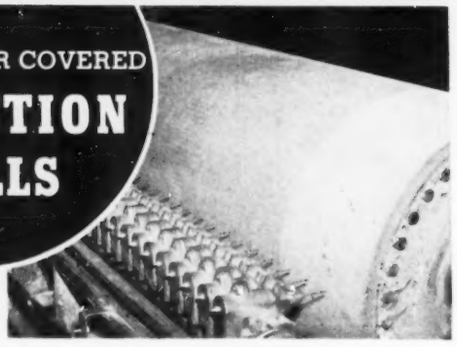

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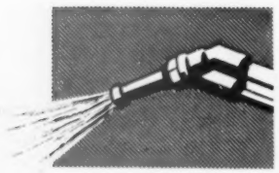

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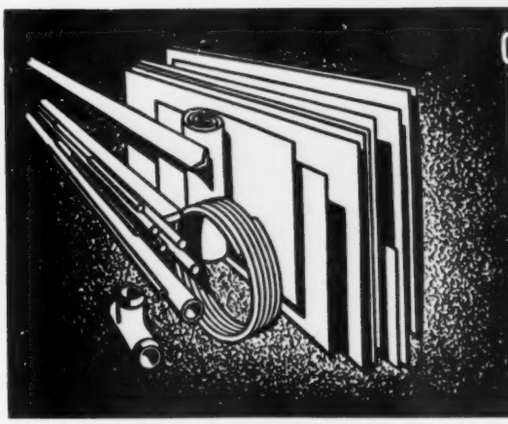

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